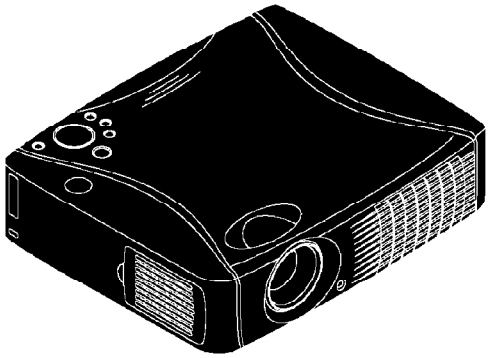
ORDER NO. VED0012307C0
D10

Service Manual

LCD Projector



PT-LC50U
PT-LC50E
PT-LC150

Specifications

LCD panels

0.7" Poly silicon LCD panel × 3,

RGB shutter method, using Translucent TN crystal panels

Drive method

Active Matrix 4:3 Aspect Ratio panels, TFT (Thin Film Transistor)

No. of pixels

480 000 (800 × 600) stripe pixels × 3panels

Lens

1-1.3 zoom lens, F2.3-2.6, f28 mm - 37 mm Manual Focus

Projector lamp

130 W UHM Lamp

Contrast ratio

300 : 1

Brightness

700 lumen / ANSI

No. of colors

16 777 216

Screen size

30" - 300"

Projection (throw) distance

1.6 m-15.7 m

Lens axis shift

6 : 1 Low position

Color systems

PAL/SECAM/NTSC/PAL-M/PAL-N/NTSC4.43

Video input signal

1 V [p-p], sync negative, 75 Ω terminated

S-Video input signal

Y (luminance signal) : 1 V [p-p], sync negative, 75 Ω terminated

C (chrominance signal) : burst 0.286 V [p-p], 75 Ω terminated

Audio input signal

0.32 V [rms]

Audio out

0.5 W Mono

RGB/YP_BP_R input signal

Video signal

RGB Analog (0.7 V [p-p], 1.0 V [p-p] with sync on green, 75 Ω)

YP_BP_R (Y:1.0 V [p-p], P_B , P_R :0.7 V [p-p], 75 Ω)

Sync signal

H/V separate, H/V composite, or Sync-on-Green

H-Frequency

24 KHz - 80 KHz (TTL Level)

V-Frequency

50 Hz - 86 Hz (TTL Level)

Connectors

S-Video Input : Mini Din 4-pin × 1

Video Input : RCA pin × 1

Audio Input : M3 stereo mini pin × 1

Serial Port (RS-232C) : Mini Din 8-pin × 1

RGB/YP_BP_R Input: D-Sub mini 15-pin × 1

Controls

Cabinet Buttons

Power ON/OFF, Menu, Input, ▲ , ▼ , ◀ (Volume -), ▶ (Volume +), Enter, Keystone

Remote Control Buttons

Panasonic

© 2000 Matsushita Electric Industrial Co., Ltd. All rights reserved. Unauthorized copying and distribution is a violation of law.

Power ON/OFF, Freeze, Shutter, Enter, Menu, Input, ▲ , ▼ , ◀ (Volume -), ▶ (Volume +), D.Zoom, Auto setup

Speaker

36 mm round

Operating Temperature

0 °C (32 °F) - 40 °C (104 °F)

Operating Humidity

20 % - 80 %

Storage Temperature

-20 °C to 40°C	40 °C to 60°C
(-4 °F to 104 °F)	(104 °F to 140 °F)

Storage Humidity

5 % - 85 %	Normal humidity
(non-condensing)	

Power Supply

100 V - 240 V AC (50 Hz or 60 Hz) Automatic

Power consumption

210 W

Dimensions W × H × D

(excluding projected portion)

267 mm × 74 mm × 208 mm

Weight

2.5 kg

Approvals

FCC, UL, C-UL, CE, VED, CCIB

Note

Specifications and design subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagram, Circuit Boards, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

Caution: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance and prevent undesirable interference, use only the provided shielded VGA cable with 2 ferrite cores while connecting LCD to computer and all other connecting cables should be shielded. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

CONTENTS

	Page
1 SAFETY PRECAUTIONS	**4**
1.1. GENERAL GUIDELINES	4
1.2. LEAKAGE CURRENT CHECK	4
1.3. UV-PRECAUTION	4
2 OPERATION GUIDE	**5**
3 SERVICE CAUTIONS AND NOTES	**78**
3.1. SERVICE POSITION	78
3.2. How to display Lamp operation time (Service Mode)	79
3.3. How to initialize EEPROM IC	79
3.4. Lamp replacement procedure	80
3.5. Cleaning the Projection Lens	81
3.6. Connection of the Flexible Cables to Trap Connector	81
3.7. External Interface (RS-232C)	82
3.8. Replacement Procedures for CSP(Chip Size Package) IC	83
3.9. How to replace the lithium battery	86
3.10. Mouse Remote Control Unit (Optional Accessory)	86

	Page
4 DISASSEMBLY/ASSEMBLY PROCEDURES	**87**
4.1. DISASSEBLY FLOWCHART OF CABINET PARTS	87
4.2. DISASSEMBLY METHOD OF CABINET PARTS	87
4.3. DISASSEBLY FLOWCHART OF OPTICAL UNIT	93
4.4. DISASSEMBLY METHOD OF OPTICAL UNIT	93
5 ADJUSTMENT PROCEDURES	**97**
5.1. INITIAL GUIDE LINE	97
5.2. TEST EQUIPMENT	97
5.3. HOW TO READ THE ADJUSTMENT PROCEDURES	98
5.4. ADJUSTMENT PROCEDURES	98
6 BLOCK DAIGRAM	**105**
7 TROUBLESHOOTING HINTS	**106**
8 SCHEMATIC DIAGRAMS	**113**
8.1. SCHEMATIC DIAGRAM NOTES	113
8.2. INTERCONNECTION SCHEMATIC DIAGRAM	114
8.3. DIGITAL SECTION SCHEMATIC DIAGRAM	115
8.4. LCD DRIVE SECTION SCHEMATIC DIAGRAM	116

8.5. RGB/VIDEO SECTION SCHEMATIC DIAGRAM 117
8.6. POWER/AUDIO SECTION SCHEMATIC DIAGRAM 118
8.7. AD/DA/TG SECTION SCHEMATIC DIAGRAM 119
8.8. IO/ROM SECTION SCHEMATIC DIAGRAM 120
8.9. OPERATION SCHEMATIC DIAGRAM (LSEP0A34A1) 121
8.10. THERMISTOR SCHEMATIC DIAGRAM (LSEP0A35A1) 121
9 VOLTAGE CHART 123
9.1. DIGITAL SECTION VOLTAGE CHART 123
9.2. LCD DRIVE SECTION VOLTAGE CHART 123
9.3. RGB/VIDEO SECTION VOLTAGE CHART 124
9.4. POWER/AUDIO SECTION VOLTAGE CHART 124
9.5. AD/DA/TG SECTION VOLTAGE CHART 125
9.6. IO/ROM SECTION VOLTAGE CHART 125
10 WAVEFORM 126
11 CIRCUIT BOARDS 127
11.1. CIRCUIT BOARDS NOTES 127
11.2. MAIN C.B.A. (LSEP3030A1: PT-LC50U/E, LSEP3030C1: PT-LC150) 128
11.3. OPERATION C.B.A. (LESP0A34A1) 130
11.4. THERMISTOR C.B.A. (LSEP0A35A1) 130
12 EXPLODED VIEWS 131
12.1. BOTTOM CASE SECTION 131
12.2. TOP CHASSIS SECTION 132
12.3. OPTICAL BLOCK SECTION 133
12.4. TOP COVER SECTION 134
12.5. FRONT COVER SECTION 135
12.6. PACKING SECTION 136
13 REPLACEMENT PARTS LISTS 137
13.1. REPLACEMENT NOTES 137
13.2. MECHANICAL REPLACEMENT PARTS LIST 138
13.3. ELECTRICAL REPLACEMENT PARTS LIST 140

1 SAFETY PRECAUTIONS

1.1. GENERAL GUIDELINES

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC Plug before disassembling this unit.
3. It is advisable to use an isolation transformer in the AC supply before servicing.
4. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
5. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations etc. are properly installed.
6. After servicing, be sure to restore the wires, leads, insulation barriers, shields, etc.
7. After servicing, make the leakage current checks to prevent the customer from being exposed to shock hazards.

Caution:

Use a separate Isolation Transformer for this unit when servicing.

1.2. LEAKAGE CURRENT CHECK

1. Connect AC Plug to 120 volt or 240 volt AC outlet.

   Do not use the ground prong of AC Plug. (See Fig. 1-2-1)

   Do not use a isolation transformer for this check.

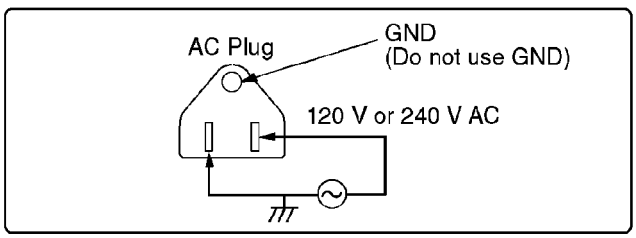


Fig. 1-2-1

2. Connect a 1.5K ohms, 10 watts resistor, in parallel with a 0.15 µF capacitor, between each exposed metallic part on the set and a good earth ground. (See Fig. 1-2-2)

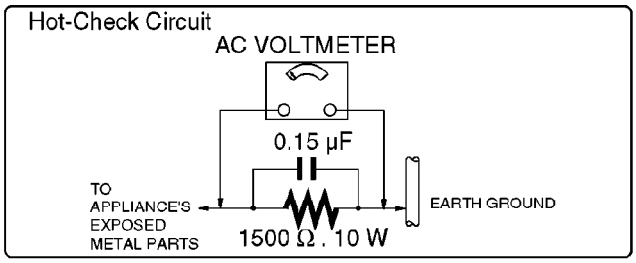


Fig. 1-2-2

3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 1.125 volt RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.75 milliamp. In case a measurement is outside of the limitsspecified, there is a possibility of shock hazard, and the LCD Projector should be repaired and rechecked before it is returned to the customer.

1.3. UV-PRECAUTION

1. Be sure to disconnect the AC Plug when replacing the lamp.
2. Since the lamp reaches a very high temperature during its operation, wait until it has completely cooled off when replacing the Lamp Unit.
3. The lamp emits small amounts of UV-Radiation.

   Avoid direct-eye contact.

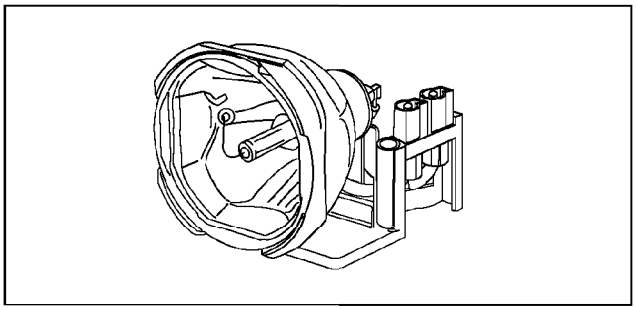


Fig. 1-3-1

2 OPERATION GUIDE

Note:

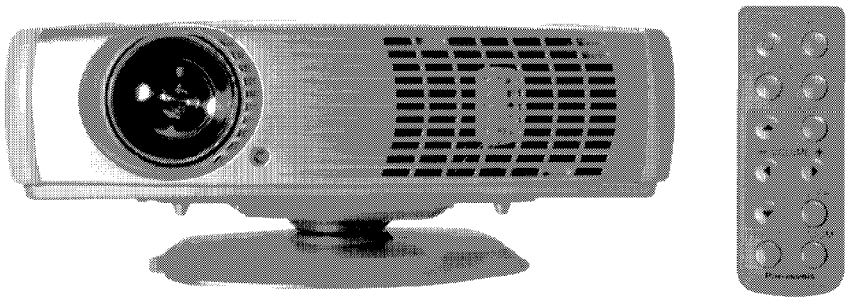
- At this service manual, it mentions only the Operating Instructions of PT-LC50U as the representative of PT-LC50U, PT-LC50E and PT-LC150.
- Because some pages in the user instruction manual are used for this chapter (page 5 through 77 in this service manual) without change, note that the page numbers shown in the sentences of this chapter are those of the user instruction manual.

Panasonic

LCD PROJECTOR

Operating Instructions

Model No. PT-LC50U



Please read these instructions completely before operating this LCD Projector.

Top page

Dear Panasonic Customer:

This instruction manual provides all the necessary operating information that you might require. We hope it will help you to get the most performance out of your new product, that you will be pleased with your Panasonic LCD Projector.
For your own protection and prolonged operation of your LCD Projector, please be sure to read the "Important Safeguards" carefully, before use.

Things You Should Know

Caution:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Previous screen

Continued on the next page... 2

Things You Should Know

Declaration of Conformity

Model Number: PT-LC50U
Trade Name: **Panasonic**
Responsible party: Matsushita Electric Corporation of America.
Address: One Panasonic Way Secaucus New Jersey 07094
Telephone number: 1-800-528-8601
This device complies with Part 15 of the FCC Rules, Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Warning:
To assure continued FCC compliance, use only the provided grounded power supply cord and prevent undesirable interference, use only the provided shielded VGA cable with 2 ferrite cores while connecting LCD to computer and all other connecting cables should be shielded. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Warning: (E.U. only)
To assure continued CE Mark compliance, use only the provided earthed power supply cord and prevent undesirable interference, use only the provided shielded VGA cable with 2 ferrite cores while connecting LCD to computer and all other connecting cables should be shielded.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

© 2000 Matsushita Electric Industrial Co., Ltd
All product/brand names are trademarks or registered trademarks of the respective holders.

Previous screen

Important Safeguards

CAUTION: **Please read all of these instructions before you operate your LCD Projector. Save these instructions for future reference.**

Electrical energy can perform many useful functions. This LCD Projector has been engineered and manufactured to meet applicable safety standards. But IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARDS. In order not to defeat the safeguards incorporated into this LCD Projector, observe the following basic rules for its installation, use and servicing.

1 Unplug the LCD Projector from the wall outlet before cleaning.

2 Do not use liquid cleaners or aerosol cleaners. Use a soft dry cloth to clean the LCD Projector unit. If the unit is very dirty, wet a cloth with neutral detergent, squeeze it tight, wipe the unit with it, and finish by wiping with a dry cloth. Do not use a chemical duster or polisher-cleaner because it can adversely affect the unit and peel the paint coat.

3 Do not use attachments not recommended by Panasonic, as they may cause hazards.

Previous screen

Continued on the next page...

Important Safeguards

4 Do not use the LCD Projector near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, etc. Never spill liquid into the LCD Projector.

5 Do not place the LCD Projector on an unstable cart, stand, or table. The LCD Projector may fall, which may cause serious injury to a child or an adult, and/or serious damage to the unit. Use only with a cart or stand recommended by its manufacturer, as being suitable for use with the LCD Projector.

6 The LCD Projector equipment and cart combinations should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

7 Slots and openings in the cabinet back and bottom are provided for ventilation. To ensure reliable operation of the LCD Projector and to protect it from overheating, these openings must not be blocked or covered. These openings should never be covered with cloth or other material. The bottom opening should not be blocked by placing the LCD Projector on a bed, sofa, rug, or other similar surface. The LCD Projector should not be placed near or over a radiator or heating vent. The LCD Projector should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.

Previous screen

Continued on the next page...

Important Safeguards

8 The LCD Projector should be operated only from the type of power source indicated on the back of the LCD Projector or in the specifications. If you are not sure of the type of power supplied to your home, consult your LCD Projector dealer or local power company.

9 Do not allow anything to rest on the power cord. Do not place the LCD Projector where the cord will be walked on.

10 Follow all warnings and instructions marked on the LCD Projector.

11 As a safety feature, the LCD Projector is equipped with a 3-prong grounded plug. The 3-prong grounded plug will fit only into a grounding type power outlet. If the plug does not fit, use an adaptor that is properly grounded or have an electrician install a grounded type outlet. Do not attempt to modify this AC plug.

12 For added protection of the LCD Projector during a lightning storm, or when it is left unattended or not in use for long periods of time, unplug it from the wall outlet and disconnect any cable systems. This will prevent damage to the projector due to lightning and power-line surges.

13 Do not overload wall outlets and extension cords with too many products, because this can result in fire or electric shock.

Previous screen

Continued on the next page...

Important Safeguards

14 Never push objects of any kind into the LCD Projector through cabinet slots as they may touch dangerous voltage points or short out parts, which could result in a fire or electric shock.

15 Do not attempt to service the LCD Projector yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

16 Unplug the LCD Projector equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power cord or plug is damaged or frayed.

B. If liquid has been spilled into the LCD Projector.

C. If the LCD Projector has been exposed to rain or water.

D. If the LCD Projector does not operate normally when you follow the operating instructions. Adjust only those controls that are covered by the operating instructions; improper adjustment of other controls may cause damage and will often require extensive work by a qualified technician to restore the LCD Projector to normal operation.

E. If the LCD Projector has been dropped or the cabinet has been damaged.

F. When the LCD Projector exhibits a distinct change in performance – this indicates a need for service.

Previous screen

Continued on the next page...

Important Safeguards

17 Upon completion of any service or repairs to the LCD Projector, ask the service technician to perform a routine safety check to determine that the LCD Projector is in safe operating condition.

18 When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.

19 Air filter should be cleaned every 100 lamp on hours. The LCD Projector may become too hot if filter is not cleaned when required.

20 If lens becomes dirty, or smudged, clean with a clean, dampened cloth. Never touch the lens with your fingers.

21 Do not look directly into the aperture and lens while operating as this may result in damage to your eyes.

Previous screen

LCD Projector Features

1 Compact & Lightweight
This LCD Projector is lightweight and compact allowing you to give presentations at any location.

2 Built-in Simple Stand
The Built-in Simple Stand makes it possible to match the projection angle with the basic use environment of your office with one-touch ease.

3 Attachable/Removable Swivel Stand
Flexible settings are possible because the projected image height and left/right tilt can be adjusted freely.

4 One-touch Auto Setup
One-touch image adjustments of RGB input can be made. The unit detects the condition (up/down) of the simple stand and automatically corrects keystone distortion.

5 Compatible with most Personal Computers
The RGB input accepts signals from VGA, SVGA, XGA, SXGA, and Macintosh compatible computers with no additional hardware.

6 Supports Component Video ($Y P_B P_R$) Input
This unit supports progressive DVD and HDTV (480 i/ 480 p/625 i/720 p/1 080 i) when components are connected.

Previous screen

Continued on the next page...

LCD Projector Features

7 Accommodates all International Broadcast Video Signal Formats

The LCD Projector accepts NTSC/PAL/SECAM/PAL-M/ PAL-N/NTSC4.43 video signal formats.

8 Digital Zoom and Freeze Feature

With remote control operation, you can display a enlarged portion of the screen up to 5 times. You can also display a freeze frame (paused) screen.

9 On-board Card Type Wireless Remote Control

Keys necessary for basic operation have been simply arranged on this compact remote control which can be stored neatly in the unit.

10 On Screen Display

In addition to English, you can select German, French, Spanish, Italian, Japanese, and Chinese.

11 Automatic Universal Power Supply

This unit has an operating voltage range of AC 100 V - 240 V.

12 CD-ROM Manual

Because this is an electronic manual, by simply clicking on the link given for each item of information, you can go directly to the related page for instructions.

Previous screen

Continued on the next page... 10

LCD Projector Features

13 Image Quality Select Feature, R/G/B Level Adjust Feature

With the Image Quality mode switch (Dynamic/ Natural) you can also fine-adjust the white balance of the projected image.

14 Full Function Remote Control Unit for LCD Projector (optional)

A full function remote control unit for LCD Projector. with built-in wireless mouse and laser pointer is available.

15 Frontal Air Vent Design

Vented air will not blow on persons located to the side or in rear of the projector and light leakage will not be a problem with the Frontal Air Vent design.

Equipped with a variety of convenient functions

A variety of functions such as the following have been provided.

- A blue screen is projected (at start-up only) when no signal is being input.
- Freeze functions for video and audio signals can be toggled on and off.
- The input signal display function can be toggled on and off.
- 16:9 (wide) screen projection is provided.
- Two projection modes (directions) to choose from.

Previous screen

Contents of LCD Projector Box

Please confirm that the following items are packed in the LCD Projector box.
They are provided to help you use or set up your LCD Projector.

(1) LCD Projector

(2) Wireless Remote Control Unit (LSSQ0275)

(3) CR2025 Lithium Battery (Included with the remote control unit)

(4) 9.8 ft UL/CSA Power Cord (LSJA0308)

(5) VGA Cable (LSJA0239)

(6) Video Cable (LSJA0074)

(7) Audio Cable (LSJA0240)

(8) Lens Cap (Included with the projector)

(9) Carrying Bag (LSFC0015)

(10) Swivel Stand (LSYC0162)

(11) CD ROM (Operating Instructions)

(12) Quick Reference Manual

(13) Warranty Card

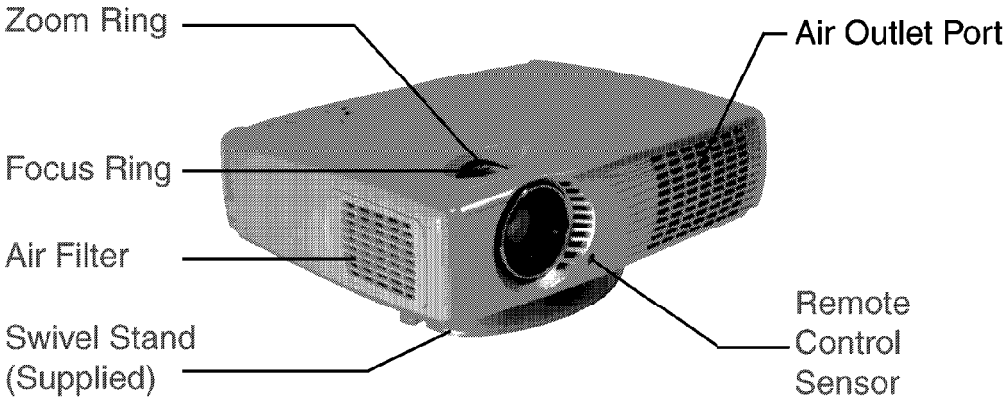
(14) Service Center List

Previous screen

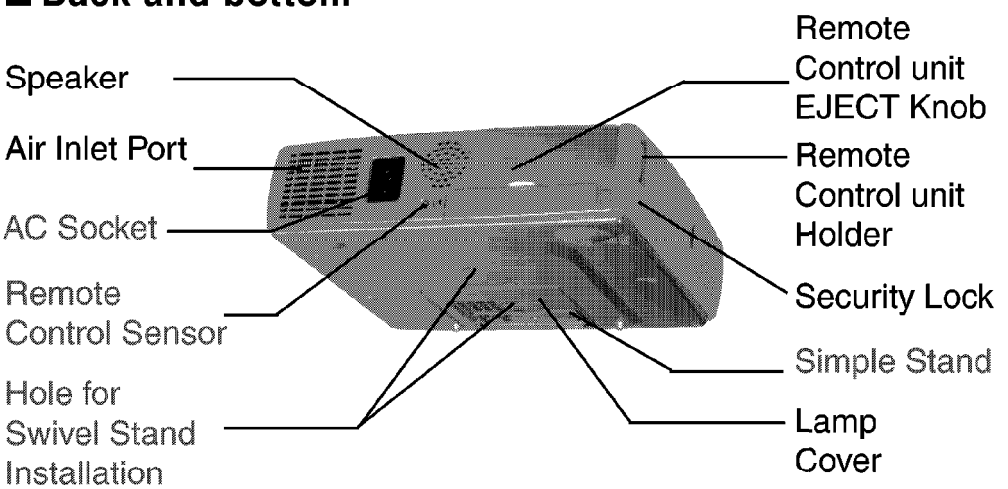
Product Information

LCD Projector Labels on the unit are omitted.

■ Top, right and front (In case Swivel stand is installed.)



■ Back and bottom



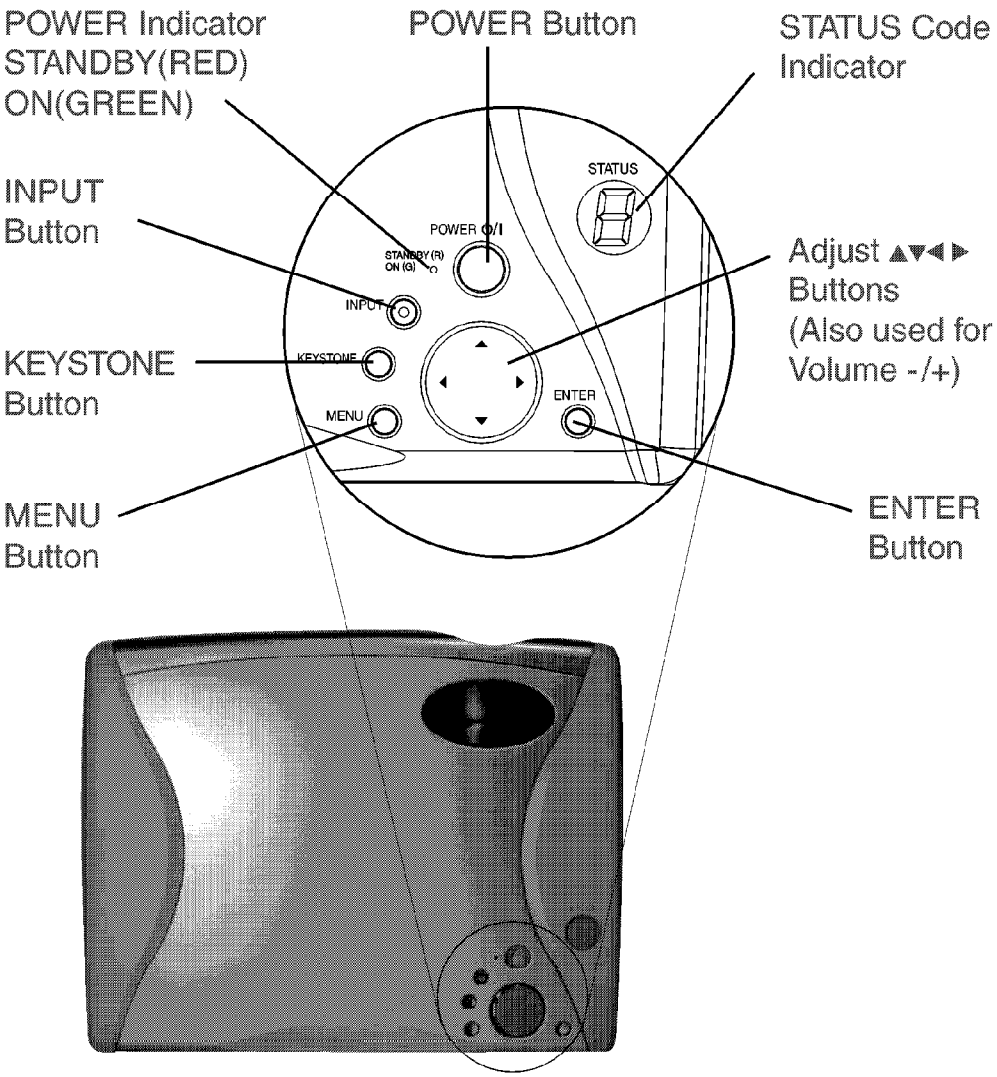
MicroSaver and Kensington are registered trademarks of Kensington Technology Group. All product names mentioned in this document are trademarks or registered trademarks of their respective owners.
© 1998 Kensington Technology Group.
Kensington Technology Group
2885 Campus Drive
San Mateo, CA 94403, U.S.A
Phone: (650)572-2700
Fax: (650)572-9675

Previous screen

Product Information

LCD Projector

■ Control panel

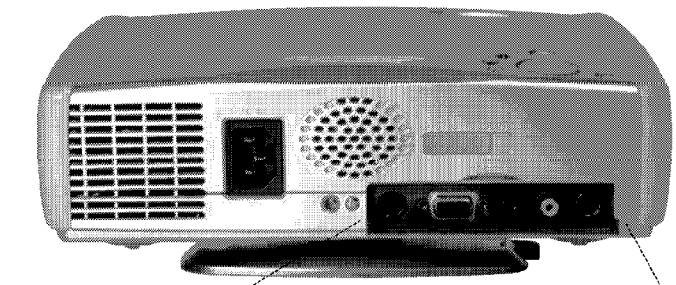


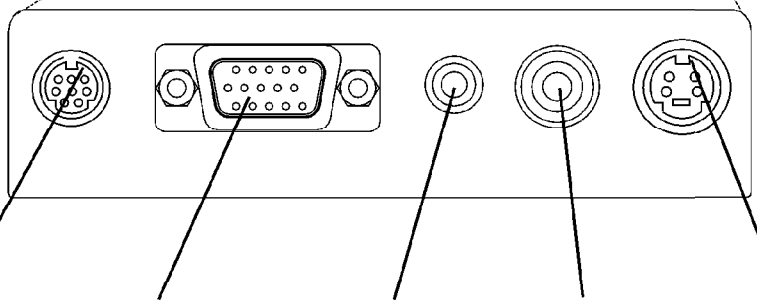
Previous screen

Product Information

LCD Projector

■ Connector panel





RS232C	RGB/YPBPR IN	AUDIO IN	VIDEO IN	S-VIDEO IN
SERIAL Connector	RGB/YPBPR Input Connector	Audio Input Connector	Video Input Connector	S-Video Input Connector

Note

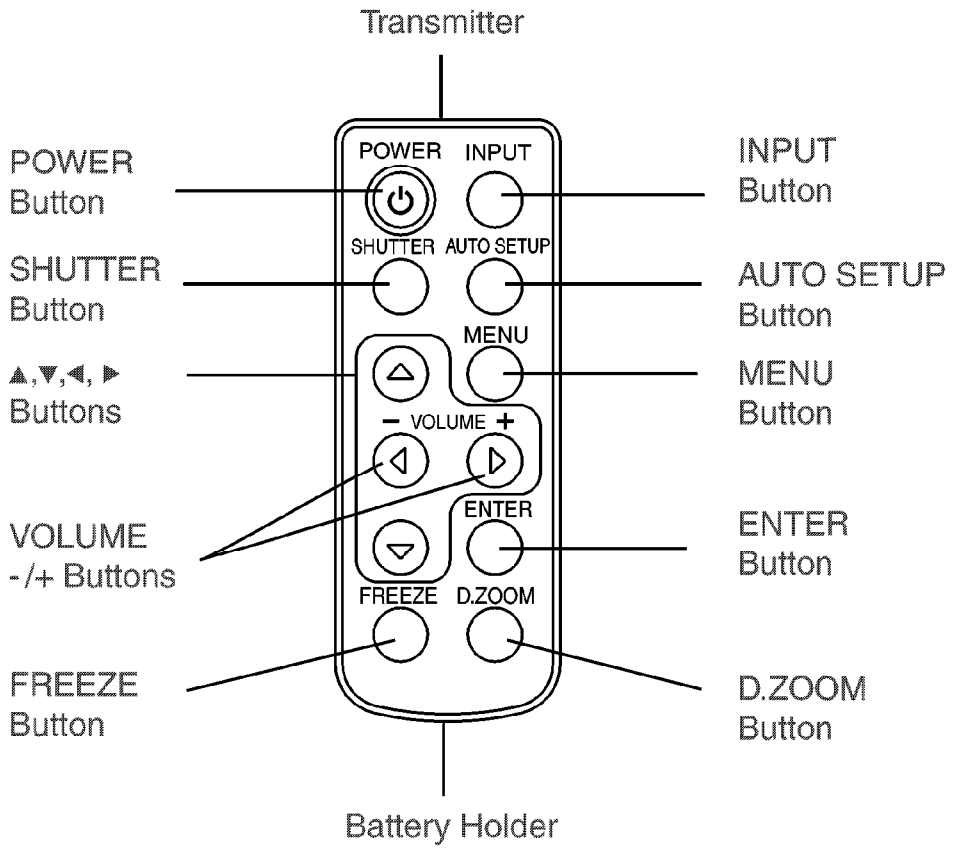
The serial connector which is on the terminal board of the projector conforms to the RS-232C interface specification, so that the projector can be controlled by a personal computer which is connected to this connector.

Previous screen

15

Product Information

Remote Control unit



Note

When you purchase the optional full functional remote control unit (ET-RMLC50), you can enjoy the wireless mouse and laser pointer features.

Previous screen

Before using the Remote Control Unit

Remote Control comes with battery inside. Please remove white protective film before use.

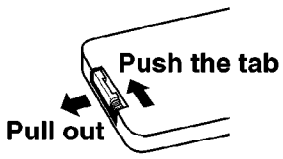
■ Replacing the battery

Insert the new lithium battery making sure the polarities (+) and (-) are correct.

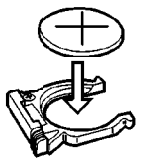
WARNING:

Replace battery with CR2025 only. Use of another battery may present a risk of fire or explosion.
Caution: Battery may explode if mistreated. Dispose of used battery promptly. Keep away from children. Do not recharge, disassemble or dispose of in fire.

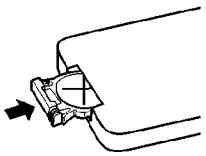
1 While pushing the battery holder tab to the left, pull out the battery holder.



2 Insert the battery into the battery holder so that the + side is facing upward.



3 Insert the battery holder.



Note

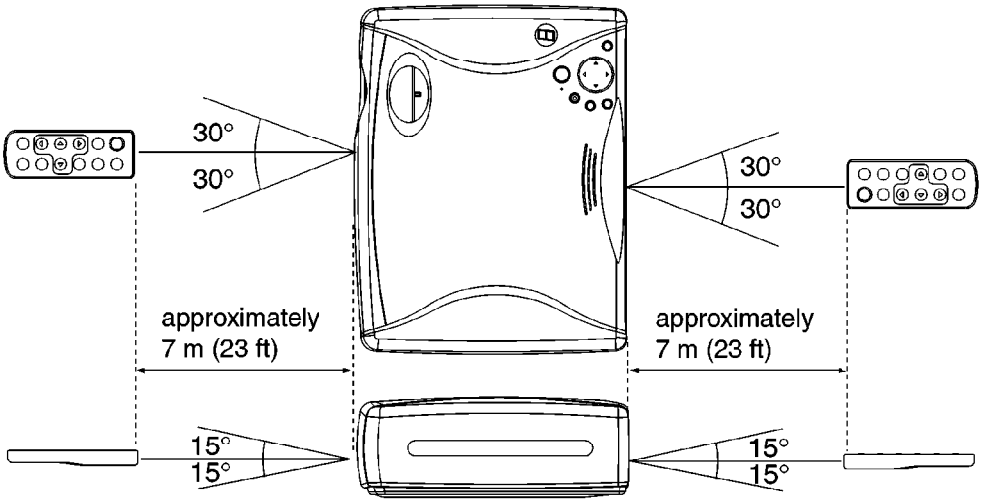
- Do not drop the remote control unit.
- Keep the remote control unit away from liquids.
- Remove the battery if not using the remote control unit for long periods.

Previous screen

Before using the Remote Control Unit

■ Operating range

If the remote control unit is held so that it is facing directly in front of the front or rear remote control signal receptors, the operating range is within approximately 7 m (23 ft) from the surfaces of the receptors. Furthermore, the remote control unit can be operated from an angle of ±30 ° to the left or right and ±15 ° above or below the receptors. (In this case, the operating range is shortened.)



Note

- If there are any obstacles in between the remote control unit and the receptors, the remote control unit may not operate correctly.
- If strong light is allowed to shine onto the remote control signal receptor, or if there are any obstacles between the remote control signal receptor and the remote control unit, correct remote control operation may not be possible.
- If facing the remote control unit toward the screen to operate the projector, the operating range of the remote control unit will be limited by the amount of light reflection loss caused by the characteristics of the screen used.

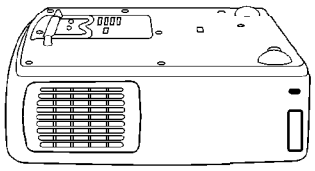
Previous screen

Attaching and Removing the Swivel Stand

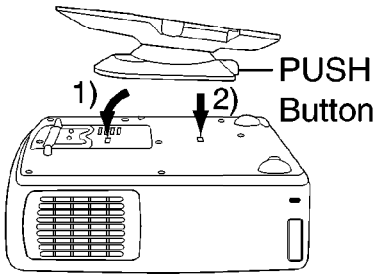
A swivel stand can be attached to or removed from the LCD Projector. When attached, you can fine-adjust the projection angle. To attach or remove the swivel stand, follow the steps below.

•Attachment

1 Place the unit upside down. Place the unit on a flat, stable surface covered with a soft cloth, etc.

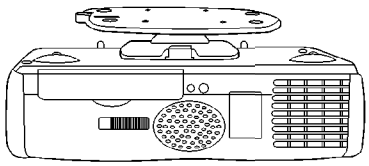


2 1) First, insert the swivel base into the front openings of the projector.
2) Then, while pressing the PUSH Button, insert into the rear openings.

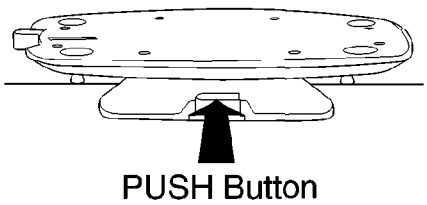


•Removal

1 Place the unit upside down. Place the unit on a flat, stable surface covered with a soft cloth, etc.



2 While pressing the PUSH Button, remove the Swivel stand.

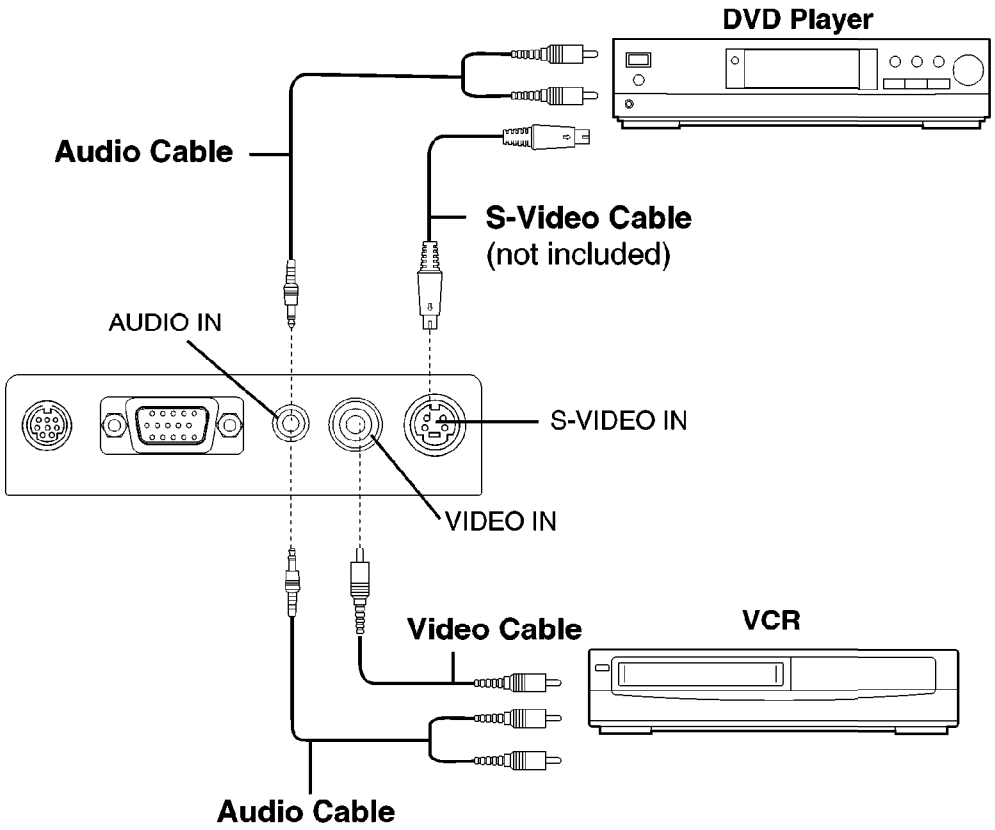


Caution:
Never pick the unit up by the swivel stand.

Previous screen

System Configuration Example

■ Example of connection to audio-visual equipment



Note

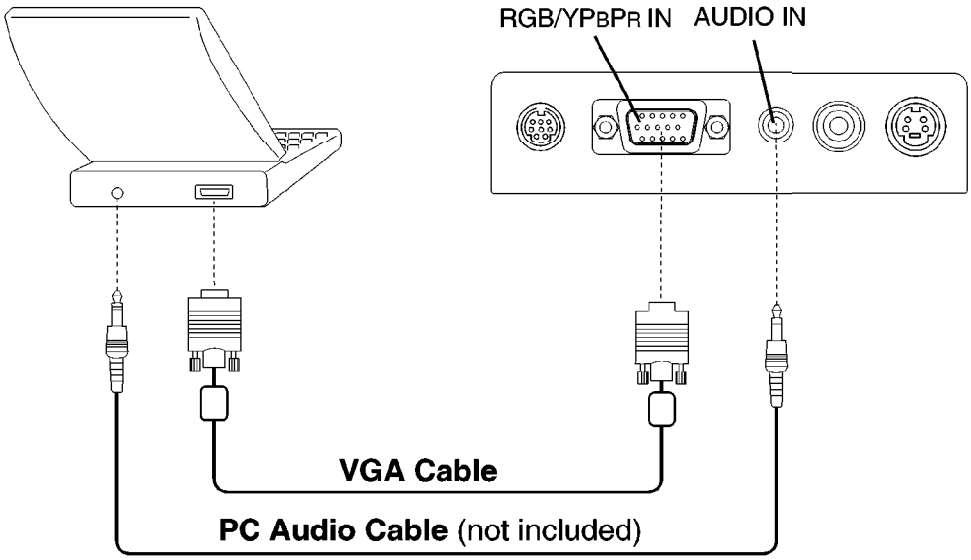
- Only one audio system circuit is available for the AUDIO IN jack, so if you wish to change the audio input source, you will need to remove and insert the appropriate plugs.
- If the video signal source is connected using a cable with a BNC junction plug, use the BNC-RCA Adaptor (not included) to convert the pin jack.

Previous screen

System Configuration Example

■ Example of connection to a Personal Computer

Personal Computer



Note

- When using the PC Plug & Play feature, first, attach the AC cord to the LCD Projector and turn the projector power on. Then, turn the PC power on.
- When LCD Projector power is turned off, shut down the personal computer as well.
- Refer to the "Signals that can be Input" for types of RGB signals which can be input to the projector by connecting a personal computer.

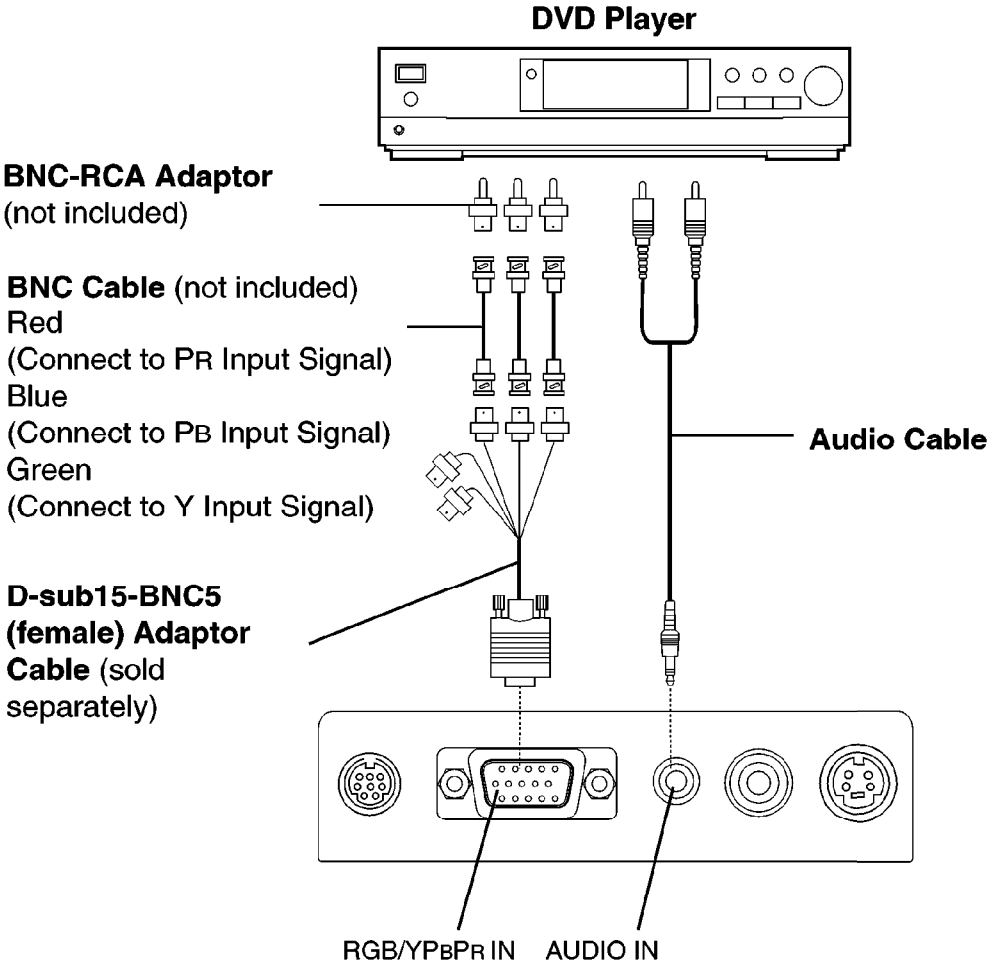
Previous screen

21

System Configuration Example

■ Connecting D-sub15-BNC5 (female) Adaptor Cable

The Component signal (YPBPR signal) can be input and projected with this LCD Projector. Please read the operating instructions regarding the output side of the component when connecting.



Previous screen

Continued on the next page...

22

System Configuration Example

Notes on system configuration

- Turn off the power supply of each system component before connecting any of the components.
- Read the instruction manual for each system component before connecting it.
- If the cables necessary for connecting a component to the system are not included with the component or available as an option, you may need to fashion a cable to suit the component concerned.
- If there is a lot of jitter in the video signal input from the video source, the picture on the screen may flicker. In such cases, it will be necessary to connect a TBC (time base corrector).
- It may not be possible to connect some types of personal computer.

Note

- Because each Y, P_B, and P_R signal is input independently, the Component signal allows for more faithful color reproduction.
- The Component signal output terminal indication will differ according to the output device (P_R, P_B, Y/R-Y, B-Y, Y/Cr, Cb, Y, etc.). Please read the operating instructions included with the output device.
- You need to change the input signal setting on this LCD Projector when inputting the Component signal. In this case, please refer to "Setting of the RGB/YP_BP_R Input Signal Selection".
- D-sub15-BNC5 (female) Adaptor Cable (sold separately) often have BNC connectors, however a DVD output device usually has RCA jacks. In this case, you will need BNC-RCA adaptors (not included).

Previous screen

23

Setting-up Positions

There are two ways of installing this projector as shown next page. This section explains the standard case of the floor-mounted front projection.
(The projection method can be set from the MENU screen. Refer to the "Changing the Projection Mode".)

Caution: When you set up the LCD Projector

- Do not place it in humid or dusty places, or places where the air is sooty or full of cigarette smoke. If the lens, mirror, or other optical components become dirty, the picture will blur or darken, making viewing difficult.
- Do not expose to extreme heat or cold. Operating temperature: 0 °C – 40 °C (32 °F – 104 °F)

Preparation

- Refer to "screen size and required distance".
- Select a room that can be darkened.

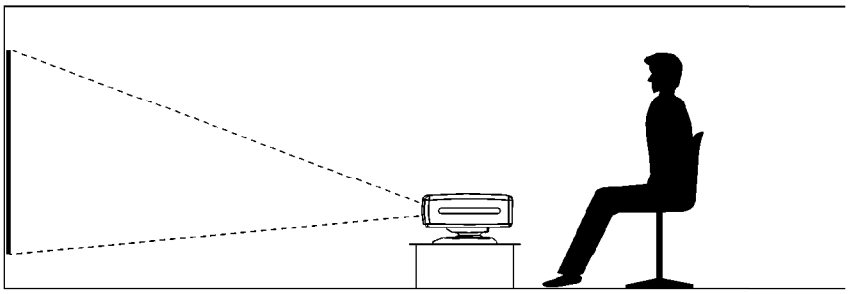
Previous screen

Continued on the next page...

Setting-up Positions

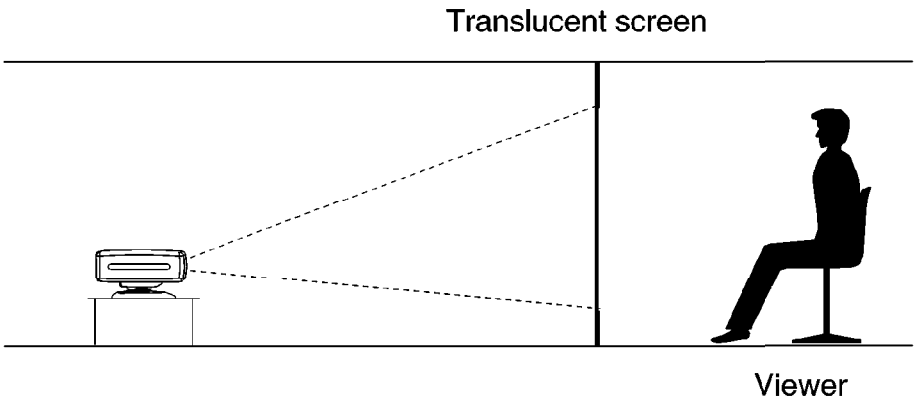
Front projection

Viewing a picture projected on the front of the screen from a floor.



Rear projection

Viewing a picture projected through the back of the screen from a floor installation.

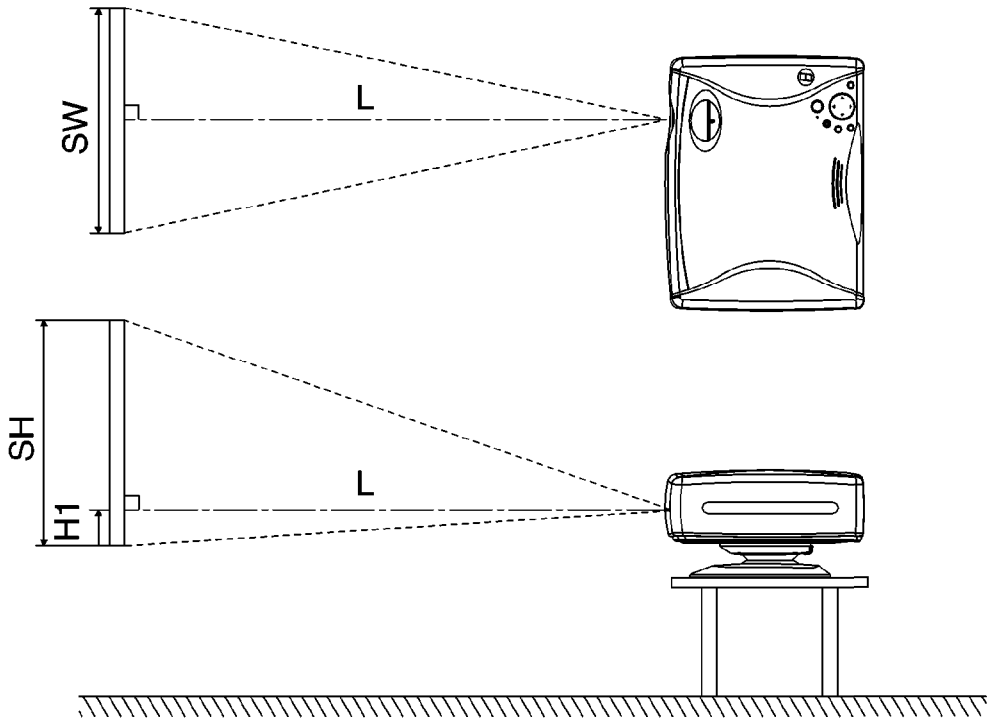


Previous screen

Setting-up Positions

■ screen size and required distance

The screen should be positioned so that it is not directly touched by sunlight or room light as this will wash out the colors of the picture making it hard to see. When possible, close all blinds, curtains, etc. and dim the lights. Also, the LCD Projector should be at a 90° angle to the screen for the best picture results. To determine the distance for the desired size, please refer to the "LCD Projector /Screen Relative Position Chart".



Previous screen

Setting-up Positions

■ LCD Projector /Screen Relative Position Chart

The picture can be adjusted to the desired size within the range of the zoom lens. (The values in the table are reference values.)

Screen type (4:3)			Throw distance (L)		Height position (H1)
Screen size	Width (SW)	Height (SH)	Wide (LW)	Telephoto (LT)	
30 in	0.61 m	0.46 m		1.6 m	6.5 cm
40 in	0.81 m	0.61 m	1.6 m	2.1 m	8.7 cm
60 in	1.22 m	0.91 m	2.4 m	3.1 m	13.1 cm
80 in	1.63 m	1.22 m	3.2 m	4.2 m	17.4 cm
100 in	2.03 m	1.52 m	4.0 m	5.2 m	21.8 cm
150 in	3.05 m	2.29 m	6.0 m	7.8 m	32.7 cm
200 in	4.06 m	3.05 m	8.1 m	10.5 m	43.5 cm
250 in	5.08 m	3.81 m	10.1 m	13.1 m	54.4 cm
300 in	6.10 m	4.57 m	12.1 m	15.7 m	65.3 cm

Setting-up dimensions which are not given in the above table can be calculated using the formulas below.
If the screen size is SD, then the following formula is first used to obtain the screen width (SW).

SW (m) = SD x 0.0254 ÷ 5 x 4

The value for SW obtained above can then be used with the following functions to calculate the projection distance.

LW (m) = 1.98 x SW

LT (m) = 2.57 x SW

For 16:9 aspect ratios, the following formula can be used to calculate the screen width (SW) and the projection distance for the wide lens position.

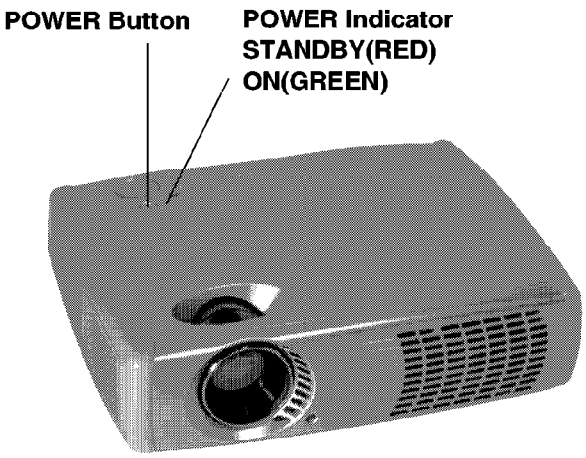
SW (m) = SD x 0.0254 ÷ 18.36 x 16

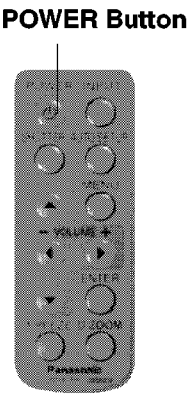
Previous screen

27

Turning the power on and off

Disconnecting the power cord from a wall outlet while the cooling fan is operating, or projecting immediately after power is turned on will shorten the lamp operating life.





(Supplied)

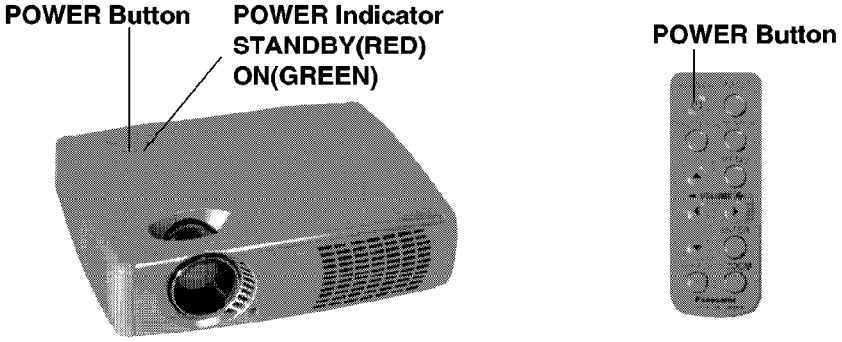
Note

- Insert Power Cord into LCD Projector AC socket and connect to properly grounded wall outlet.
- When power is turned off, the cooling fan continues to operate (approximately 60 seconds) in order to cool the projector interior.
- This unit consumes approx. 15 W in OFF condition when plugged into an AC outlet.

Previous screen

Continued on the next page... 28

Turning the power on and off



Turning on the power

1 **Press POWER Button** on the LCD Projector or remote control unit.

2 The power indicator will flash, then turn solid green and a picture will be projected onto the screen.

Note

The LCD Projector cannot be turned on for 60 seconds after turning it off.

Turning off the power

1 **Press POWER Button** on the LCD Projector or remote control unit. "Please press POWER button again to power off." is displayed on the screen, **and then press POWER Button** again.

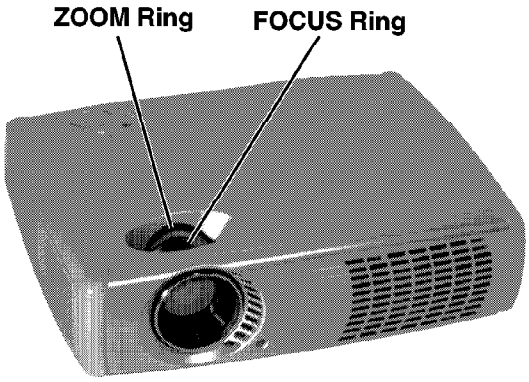
2 The power indicator will illuminate flashing red.

3 **Wait for the cooling fan to stop.**
The power indicator changes to solid red, the cooling fan stops, and the projector goes into Stand-by mode. (After about 1 minute)

Previous screen

Adjusting the Lens

Refer to the "LCD Projector/Screen Relative Position Chart". After placing the LCD Projector to the throw distance which corresponds with the desired screen size, follow the steps below to adjust the zoom and focus while viewing a projected image.



• Adjustment procedure

1 Turn the ZOOM Ring to adjust the size of the picture.
- When facing the rear of the projector, turn the ring to the right for a smaller picture, or to the left for a larger picture.

2 Turn the FOCUS Ring to adjust the focus of the picture.
- Turn the ring to the right or left until the picture is at the optimum focus.

3 Turn the ZOOM Ring again to adjust the size of the picture.
- When you turn the FOCUS Ring, the size of the picture changes.

Previous screen

30

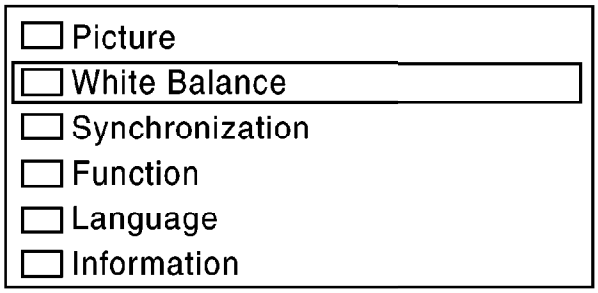
Menu operations

This section explains how to reach the desired selection or setting screens from the MENU screen.

When an RGB signal is being projected.
(for white balance adjustment of the red component)

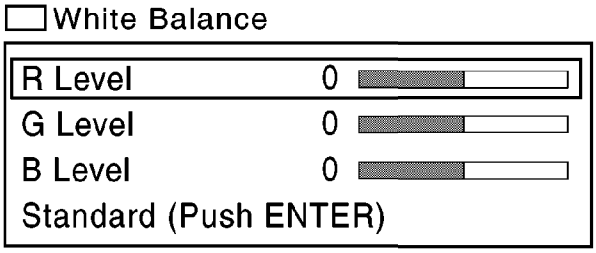
1 Press the MENU Button.
The Main MENU screen will be displayed.

Use the ▲, ▼ Buttons to select an item, and then **press the ENTER Button.**
The Second MENU screen will be displayed.



(Main MENU screen)

2 Press the ▲ or ▼ Buttons to select an item, and then **press the ◄ or ► Buttons** to change or adjust the setting.



(Second MENU screen)

Note

- The last adjustment condition is saved and will not be erased even if the power is turned off.
- The value differs with each input signal.

Previous screen

31

Menu operations

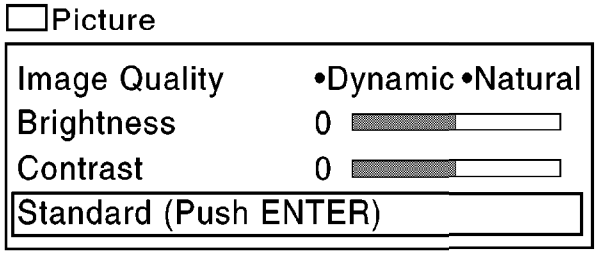
■ Returning to the previous screen

If you press the MENU Button while a menu screen is being displayed, the display will return to the previous screen.
If you press the MENU Button while the Main MENU screen will be cleared.

■ Returning adjustment values to the factory default settings (standard values)

If "Standard" is selected while the "Second MENU" is displayed, the setting can be returned to the factory default setting.
However, the operation of this function varies depending on which screen is being displayed.

Use the ▲, ▼ Buttons to select "Standard", and then **press the ENTER Button.**



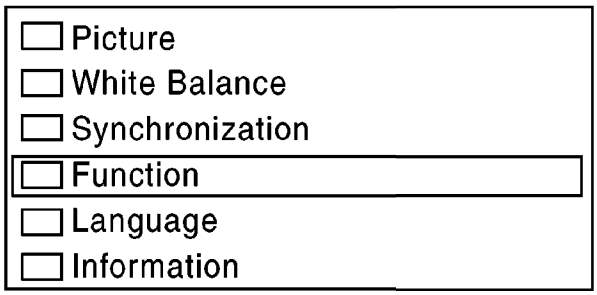
Previous screen

Changing the Projection Mode

The projection mode used by the projector can be changed in accordance with the setting-up position. You may select from two direction types. At the time of shipment from the factory, the projector is set to the "Front" projection mode, but this can be changed if required.
The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

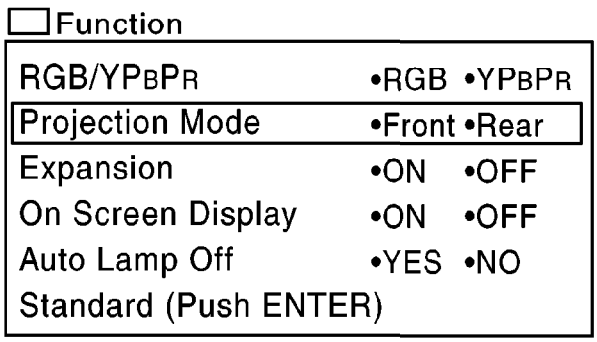
• Selecting procedure

1 **Press MENU** to display the menu.
2 **Press ▲ or ▼** to select "Function", **and then ENTER** to display the screen.



3 **Press ▲ or ▼** to select "Projection Mode".

4 **Press ◄ or ►** to select projecting mode.
- Front (Factory setting)
- Rear (Right and Left displays in reverse)



Previous screen

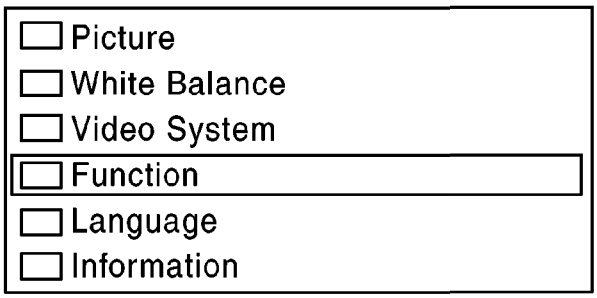
Setting the Screen Type

This LCD Projector is compatible with wide screen (16:9 ratio). If a wide screen is used and you set the screen type to 16:9 in order to project a wide (16:9) picture to fill the entire screen, pictures are correctly projected within the screen when projecting older (normal) 4:3 ratio pictures. Please follow the instructions below to set the screen type.
The procedure and on-screen display as below are based on S-VIDEO/VIDEO as the input signal.

• Setting procedure

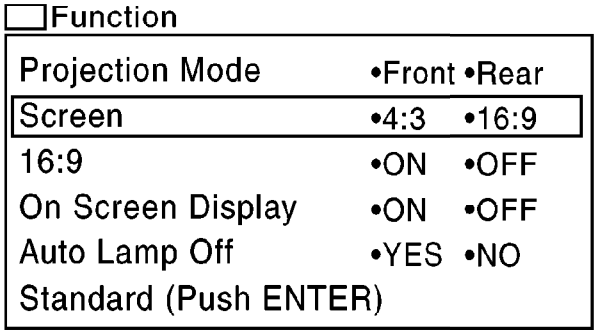
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Function", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "Screen".

4 Press ◄ or ► to change the screen type.
- The 4:3 type screen is set at the factory.



Previous screen

34

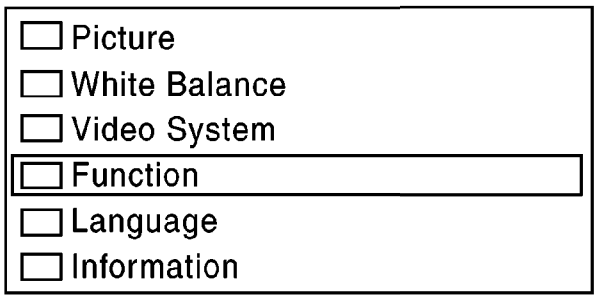
Changing to 16:9 (wide) screen format

When a S-VIDEO/VIDEO or DTV Format (RGB, YPBPR) signals is input, the image can be displayed in 16:9 (wide) screen by the following procedure. This only applies for S-VIDEO/VIDEO and DTV Format signals. The procedure below describes the on-screen displays when the S-VIDEO signal or the VIDEO signal is being projected.

•Selecting procedure

1 **Press MENU** to display the menu.

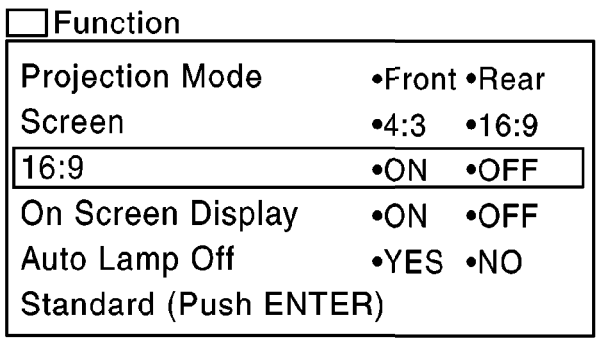
2 **Press ▲ or ▼** to select "Function", **and then ENTER** to display the screen.



3 **Press ▲ or ▼** to select "16 : 9".

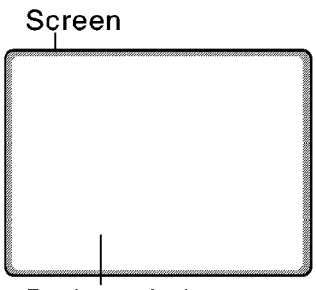
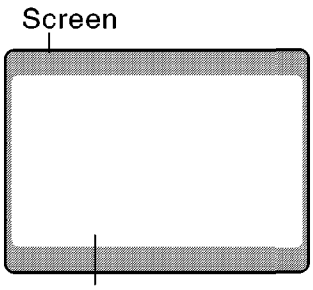
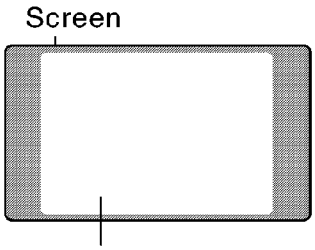
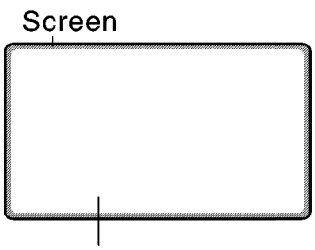
4 **Press ◄ or ►** to select "ON" or "OFF".

- Select "OFF" to return the normal screen. (This is the factory setting.)
- Select "ON" to display in 16:9 (wide) screen.



Previous screen

Explanation of Screen Type

	16:9 (Wide) Function OFF	16:9 (Wide) Function ON
4:3 Type Screen		
16:9 Type Screen		

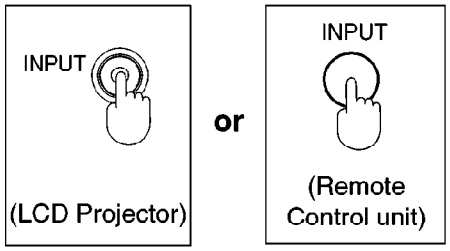
Note

Even if the 16:9 (wide) screen feature is set to OFF, when an "S1" signal or DTV Format signal (720 p, 1 080 i) is input, the image is automatically displayed in 16:9 (wide) screen.

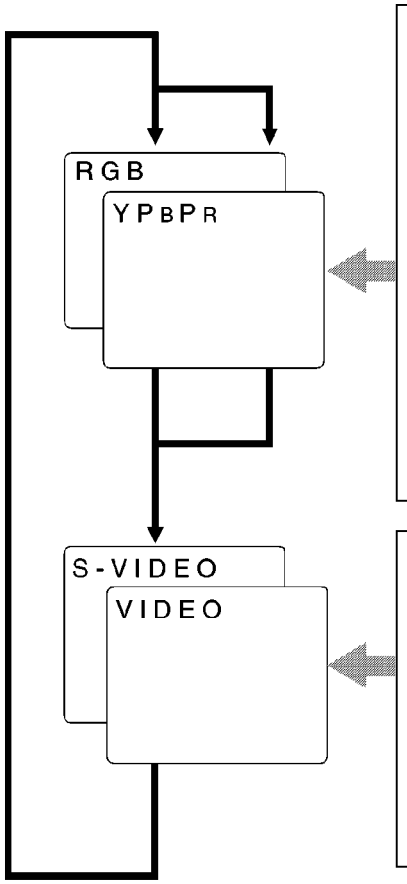
Previous screen

Changing the input signal

The input source for picture signals can be changed by pressing the INPUT Buttons on the projector operating panel or on the remote control unit.



Press the INPUT Button



The signal from the source which is connected to the RGB/YPBPR IN connector is projected.
This terminal accepts input of RGB input signals from a personal computer and DTV Format signals (RGB, YPBPR) from a DVD or a digital broadcast. No monitor or projector can automatically decide whether a Component signal is the RGB-type or the YPBPR-type. So, you will have to select either RGB or YPBPR manually.

The signal from the source which is connected to the S-VIDEO IN connector or VIDEO IN connector is projected.
If cables are connected to both connectors, the S-VIDEO signal will be selected automatically. (The S-VIDEO signal has priority.)

Previous screen

Continued on the next page...

37

Changing the input signal

Note

- To turn off the input signal on-screen display, please see "Turning off the input signal display".
- Only one audio system circuit is available for the AUDIO IN jack, so if you wish to change the audio input source, you will need to remove and insert the appropriate plugs.
- The LCD Projector is shipped from the factory with the system format selection function set to "AUTO". If the correct picture is not projected when S-VIDEO/VIDEO signal is input and it is necessary to change the input to match the input signal, refer to "S-VIDEO/VIDEO Signal Format Selection".
- Please refer to the "Setting of the RGB/YPBPR Input Signal Selection" if you change the signal input to the RGB/YPBPR connector.
- When RGB signal is input, please input the registered signals found.

Previous screen

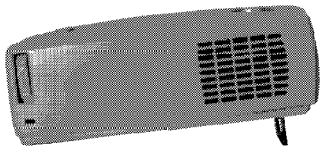
38

Adjusting the LCD Projector projection angle

Adjusting the LCD Projection angle of the LCD Projector. When the projector is in the horizontal position, keystone correction is unnecessary and a correct image can be viewed.

■ Using the simple stand

While lifting up the front of the projector, pull down the simple stand located underneath the unit.



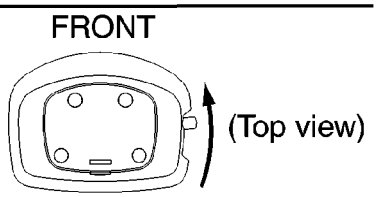
Note

The LCD Projector detects whether the Simple Stand is down or up and automatically corrects keystone distortion when the KEYSTONE Button is pressed.

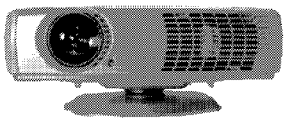
Caution:
Never pick the unit up by the simple stand.

■ Using the swivel stand

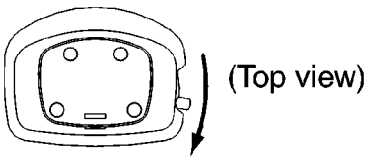
1 Slide the TIGHTEN Knob to the LOOSEN position.



2 Adjust to the desired projection angle. If necessary, you can also tilt to the right or left.



3 Slide the TIGHTEN Knob to the TIGHTEN position.

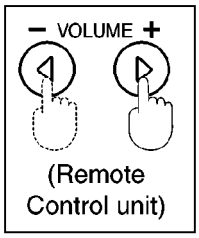


Previous screen

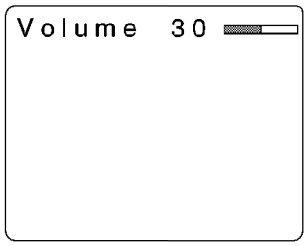
Basic LCD Projector Operation

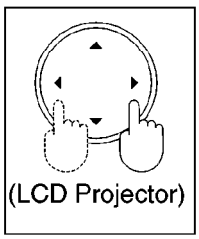
■ Adjusting the Volume

The volume can be adjusted using the VOLUME -/+ Buttons on the remote control unit.



- **Press VOLUME - Button** to turn down the volume.
- **Press VOLUME + Button** to turn up the volume.



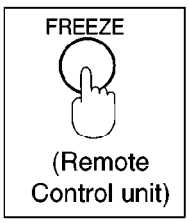


Note

- The "Volume" will remain displayed on the screen for approximately 5 seconds.
- Volume cannot be adjusted with the ◄, ► keys on the unit while D. ZOOM and MENU screens are displayed.

■ Freezing the picture

Projection can be switched between a frozen (still) picture and a moving picture each time the FREEZE Button on the remote control unit is pressed. Press FREEZE Button again to resume motion.



Note

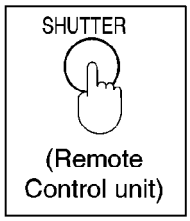
Sound is muted while the picture is frozen.

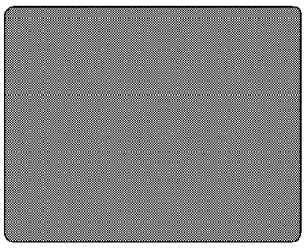
Previous screen

Basic LCD Projector Operation

■ Turning off the Picture and Sound at the same time

When SHUTTER Button is pressed on the remote control the picture and sound turns off and the screen goes black, Press SHUTTER Button again to resume picture and sound.





Black screen

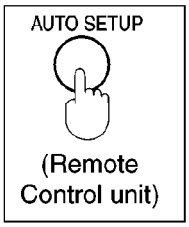
Note

- When the screen goes black, the picture will not be shown on the screen. However, the picture continues to be sent from the personal computer or video source.
- The projector uses less power in shutter mode than it does in normal projection mode.

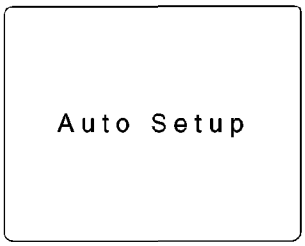
Previous screen

Using the Auto Setup Feature

When projecting RGB signal images from a personal computer, it is possible to automatically adjust the image's position, dot clock and phase simultaneously (only for projection of images with RGB signal inputs other than DTV format signals). Perform the operation described below if you wish to use this function.



Press the AUTO SETUP button on the remote control unit.



Note

- The LCD Projector detects whether the simple stand are down or up and automatically corrects keystone distortion.
- Adjusted settings are saved as is even if power is turned off.
- If the edges of the projected picture are indistinct, or if a dark picture is being projected, the automatic set up processing may stop automatically before it is complete. If this happens, project a different picture and then press the AUTO SETUP Button once more. Or, perform the following operations as indicated in the on-screen display.
  Refer to the "Adjusting the Image Position, Dot Clock and Phase".
  Refer to the "Keystone correction function".

Previous screen

42

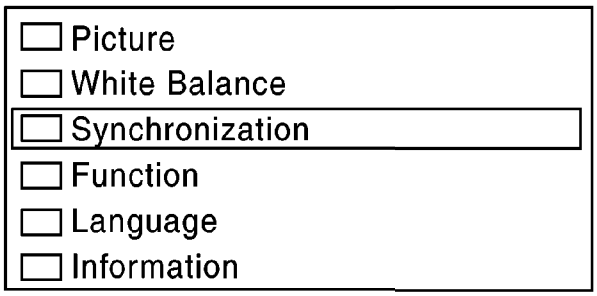
Adjusting the Image Position, Dot Clock and Phase

Confirm the picture position, Dot Clock, and Phase. If the picture is not correctly positioned within the display area of the screen (the edge of the picture does not appear), adjust the picture position. The items which can be adjusted will vary depending on the type of input signal.
The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

• When adjusting the Horizontal Position (H Position)

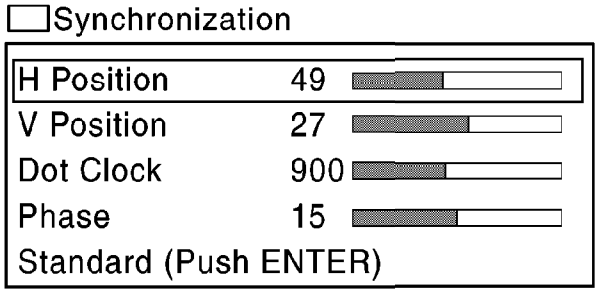
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Synchronization", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "H Position".
- When adjusting the Vertical Position, Dot Clock, and Phase, move the arrow to the item you want to adjust.

4 Press ◄ or ► to adjust the H Position setting.
- The current setting will be displayed on the screen by numerals and a bar.



Previous screen

Continued on the next page...

Adjusting the Image Position, Dot Clock and Phase

Depending on the adjustment item, the adjust procedure and adjustment will vary. Please refer to the chart below.

Adjustment item	Button	Adjustment Details	Remarks
H Position	Press ▶ Button.	The image moves to the right.	
	Press ◀ Button.	The image moves to the left.	
V Position	Press ▶ Button.	The image moves up.	
	Press ◀ Button.	The image moves down.	
Dot Clock	Adjust the personal computer's dot clock and the projector's dot clock so that no bit interference (vertical stripes) appears on the screen.		RGB, YPBPR only
Phase	Adjust in order to remove any picture interference or contour blurring which may occur in computer images.		RGB only

Previous screen

44

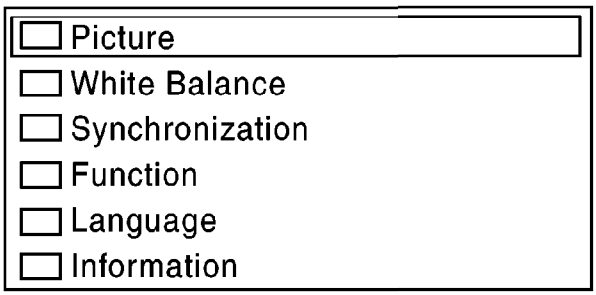
Selecting the Image Quality

This LCD Projector can select Dynamic or Natural as the special characteristic of image quality.
Follow the instructions below to select the image qualities you prefer.
The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

• Setting procedure

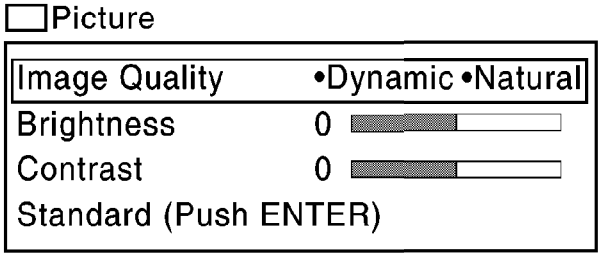
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Picture", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "Image Quality".

4 Press ◄ or ► to select the Image Quality.
- Dynamic is the factory RGB input signal setting.
- Natural is the factory S-VIDEO/ VIDEO, YPBPR input signal setting.



Previous screen

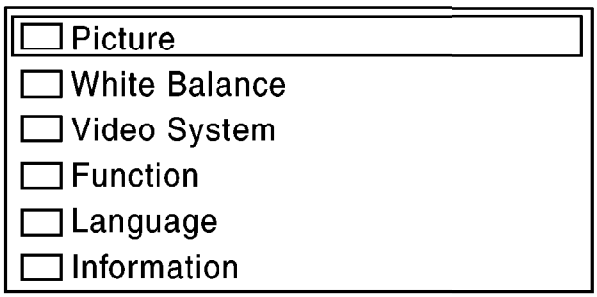
Adjusting the Picture to the Desired Setting

The items which can be adjusted will vary depending on the type of input signal.
The adjustment procedure below describes the on-screen displays when the S-VIDEO signal or the VIDEO signal is being projected.

•Adjustment procedure (when adjusting the Color)

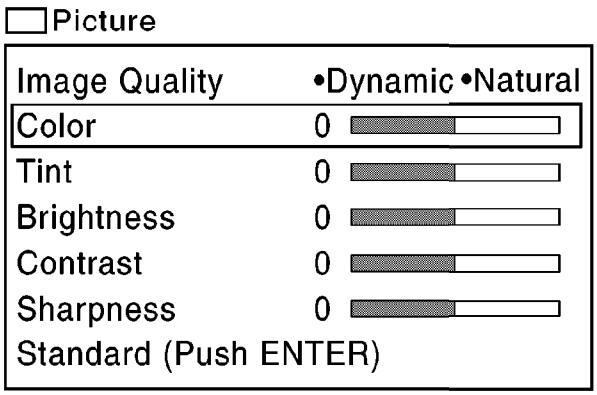
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Picture", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "Color".

4 Press ◄ or ► to adjust the color.
- The current setting will be displayed on the screen by numerals and a bar.



Previous screen

Continued on the next page...

Adjusting the Picture to the Desired Setting

Depending on the adjustment item, the adjust procedure and adjustment will vary. Please refer to the chart below.

Adjustment item	Button	Adjustment Details	Remarks
Color	Press ▶ Button.	The color becomes deeper.	$Y P_B P_R$, S-VIDEO/ VIDEO only
	Press ◀ Button.	The color becomes paler.	
Tint	Press ▶ Button.	Flesh tones become greenish.	NTSC/ NTSC 4.43 (S-VIDEO/ VIDEO) only
	Press ◀ Button.	Flesh tones become reddish.	
Brightness	Press ▶ Button.	The screen becomes brighter.	
	Press ◀ Button.	The screen becomes darker.	
Contrast	Press ▶ Button.	Only the Highlights of the image become brighter, adding Contrast.	
	Press ◀ Button.	The Highlights become less bright, diminishing Contrast.	
Sharpness	Press ▶ Button.	The picture quality becomes sharper.	$Y P_B P_R$, S-VIDEO/ VIDEO only
	Press ◀ Button.	The picture quality becomes softer.	

Note

The different adjustment condition cannot be saved for S-VIDEO and VIDEO.

Previous screen

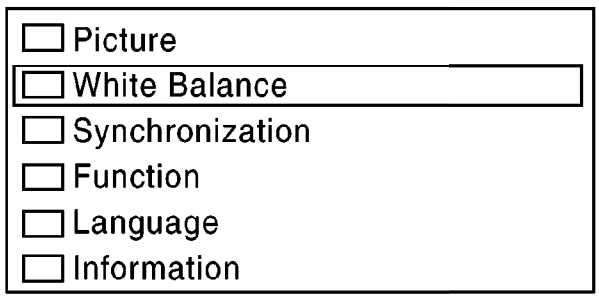
Adjusting the White Balance

The picture may become over-saturated with red or blue color, and the white color may not be at the desired degree of whiteness. In such cases, adjust the white balance by the following procedure.
The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

•Adjustment procedure
(for white balance adjustment of the red component)

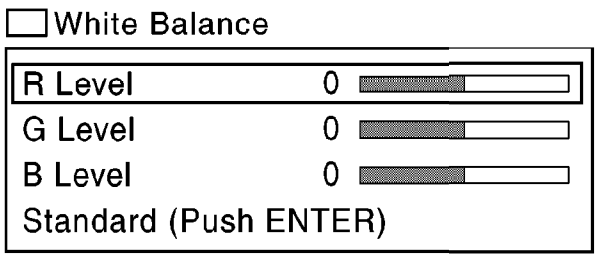
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "White Balance", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "R Level".

4 Press ◄ or ► to adjust the R Level setting.
- The current setting will be displayed on the screen by numerals and a bar.



Previous screen

Continued on the next page...

Adjusting the White Balance

Depending on the adjustment item, the adjust procedure and adjustment will vary. Please refer to the chart below.

Adjustment item	Button	Adjustment Details
R Level	Press ▶ Button.	The red component becomes stronger.
	Press ◀ Button.	The red component becomes weaker.
G Level	Press ▶ Button.	The green component becomes stronger.
	Press ◀ Button.	The green component becomes weaker.
B Level	Press ▶ Button.	The blue component becomes stronger.
	Press ◀ Button.	The blue component becomes weaker.

Note

Unless properly adjusted, none of the colors may display normally.

Previous screen

Setting of the RGB/YPBPR Input Signal Selection

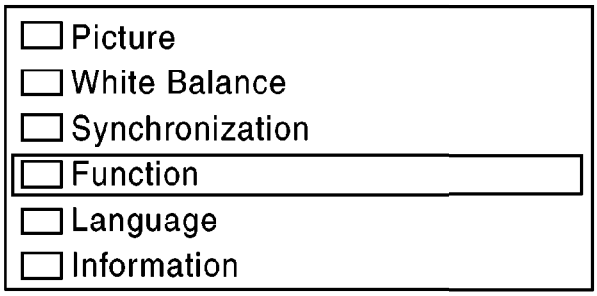
DTV Format Signal, such as DVD or digital broadcast, etc. can be input and projected with this Projector. When using this function, please refer to correctly connect to the output device of the DTV Format Signal and perform the following settings correctly.

This LCD Projector allows input of RGB or YPBPR signals (Component input signal) to the RGB/YPBPR input terminal, but you will need to change the setting of the input signal selection manually when changing the signal to be input. If the input signal selection is not set correctly, a normal image will not be projected.
The RGB input signal is set at the factory. Please follow the instructions below to change the input signal.

• Setting procedure

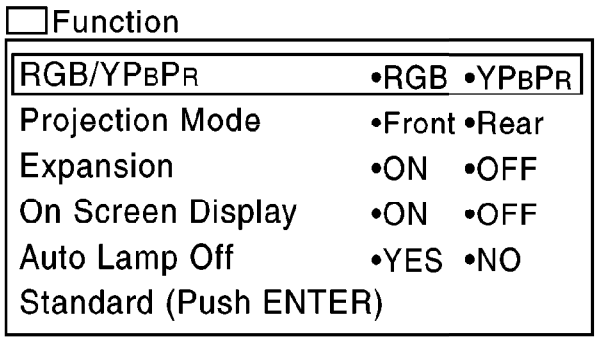
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Function", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "RGB/YPBPR".

4 Press ◄ or ► to change the input signal.



Previous screen

50

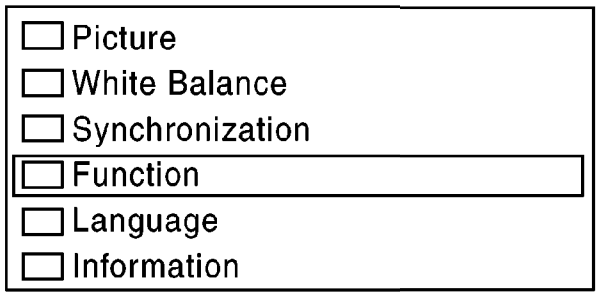
Turning off the input signal display

The function which displays the currently selected input signal on the screen can be turned off by the following procedure. Freeze displays will also be turned off.
The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

•Selecting procedure

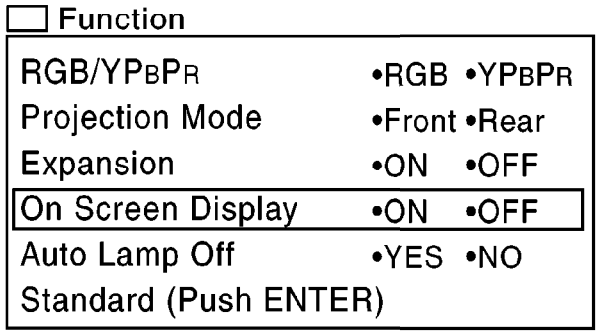
1 **Press MENU** to display the menu.

2 **Press ▲ or ▼** to select "Function", **and then ENTER** to display the screen.



3 **Press ▲ or ▼** to select "On Screen Display".

4 **Press ◄ or ►** to select "ON" or "OFF".
- Select "OFF" to turn off the input signal display function.
- Select "ON" to turn the input signal display function. The input signal will be displayed each time it is changed. (This is the factory setting.)



Previous screen

51

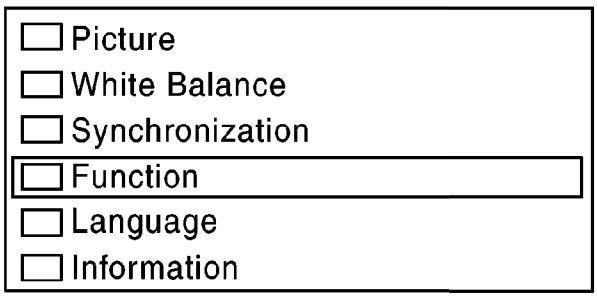
Auto Lamp Off

The power save function operates as follows: If the projector continues projecting for 15 minutes or more while there is no input signal to be projected, the light source will shut off automatically to save power. And, the projector will enter standby mode. At the time of shipment from the factory, the Auto Lamp Off function is set YES, so that if you will not use this function, you can turn it off by the following procedure. The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

•Selecting procedure

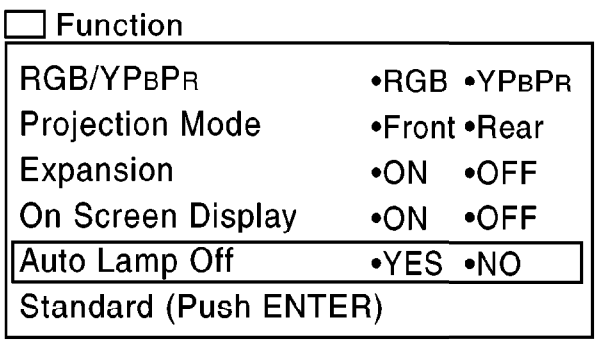
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Function", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "Auto Lamp Off".

4 Press ◄ or ► to select "YES" or "NO".



Previous screen

52

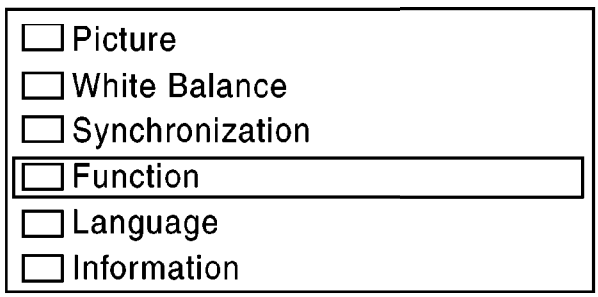
Canceling enlarging (scanning line conversion) function

When a signal less than 800 X 600 dots signals is input, the LCD Projector automatically enlarges the image to 800 X 600 dots. This may cause picture quality degration. For better image, select Expansion: OFF by the following procedure. The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

• Setting procedure

1 Press MENU to display the menu.

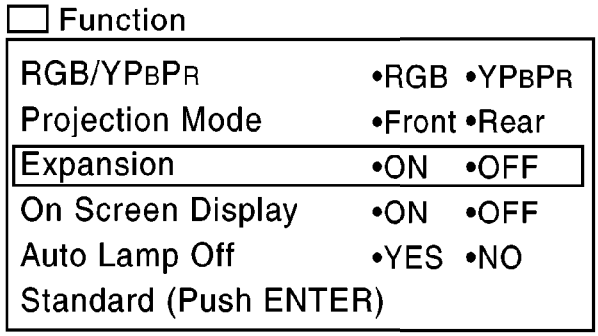
2 Press ▲ or ▼ to select "Function", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select "Expansion".

4 Press ◄ or ► to select "ON" or "OFF".

- Select "OFF" to cancel enlarge (scanning line conversion) function.
- Select "ON" to use enlarge (scanning line conversion) function. (This is the factory setting.)



Previous screen

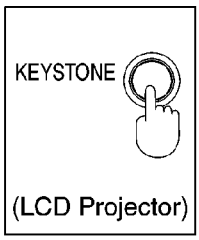
Keystone correction function

When the screen and projector are not level, a keystone (trapezoid) image may occur. This can be corrected by doing the following.

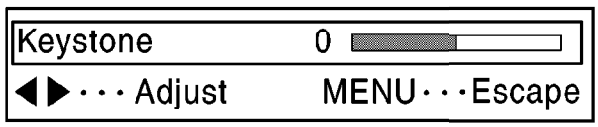
• **procedure**

1 Project a picture onto the screen.

2 Press the KEYSTONE button on the projector.



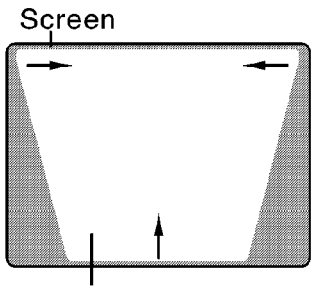
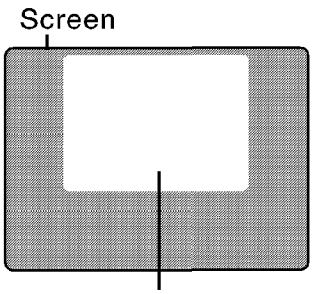
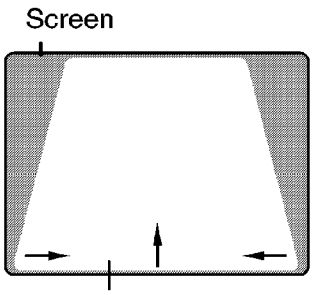
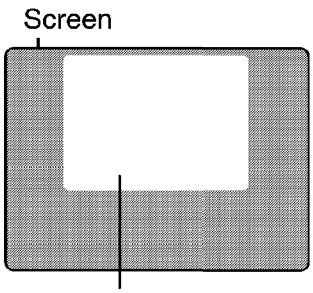
3 Press ◀ or ▶ to adjust the Keystone.



Previous screen

Continued on the next page...

Keystone correction function

	Keystone Image	Corrected Image
Keystone (top : wide)	 **Press ▶..** Top becomes narrow.	
Keystone (under : wide)	 **Press ◀..** Bottom becomes narrow.	

Note

- When keystone is corrected, the screen becomes smaller.
- The LCD Projector detects whether the Simple Stand is down or up and automatically corrects keystone distortion when the KEYSTONE Button is pressed.

Previous screen

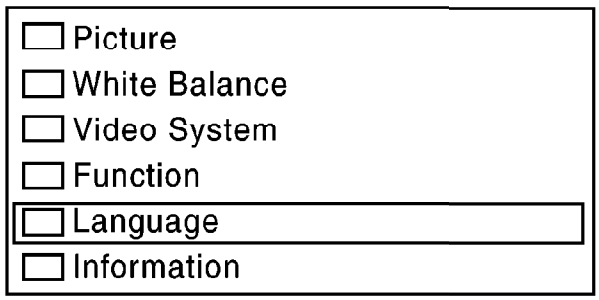
Selecting the Language for On-Screen Displays

The language of the LCD Projector is set to English as the factory setting. To select one of seven different languages for on-screen display, follow the instructions below. The procedure below describes the on-screen display when the S-VIDEO signal or the VIDEO signal is being projected.

•Selecting procedure

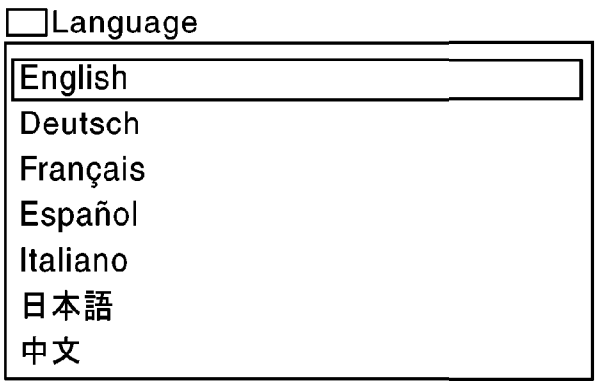
1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Language", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to select language.

- You can select English, German, French, Spanish, Italian, Japanese and Chinese.



Previous screen

56

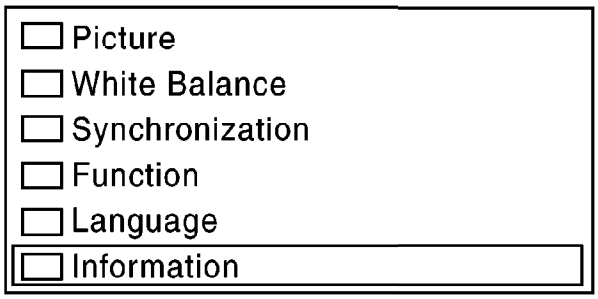
Information Functions

You can display the input signal type and lamp run time. Display items differ depending on the input signal. The procedure and on-screen display as shown below are based on RGB as the input signal from a personal computer.

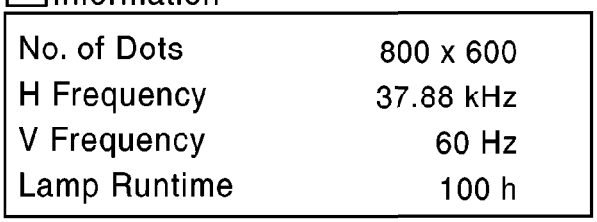
• procedure

1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Information".



3 Press ENTER to display the screen.



Previous screen

Continued on the next page...

Information Functions

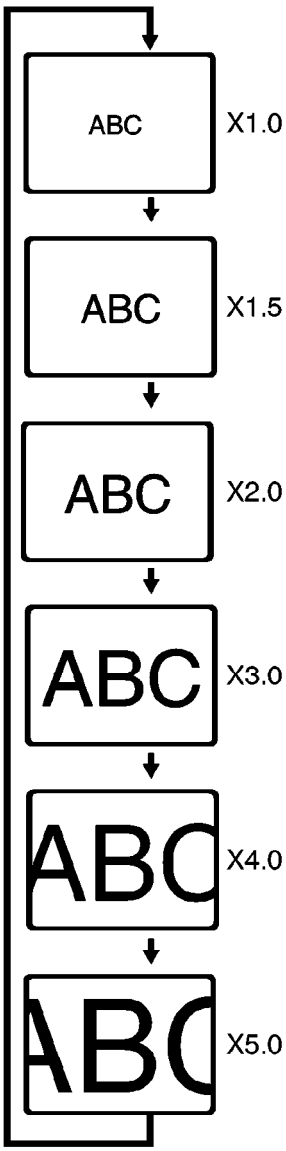
Display Item	Description	Remarks
No. of Dots	Input signal dot number is displayed.	Personal Computer Signals (RGB) only
H Frequency	Horizontal frequency number is displayed.	
V Frequency	Vertical frequency number is displayed.	
Signal	Name of the input signal type is displayed. When AUTO is selected in the Video System screen, the selected format will be displayed.	YP_BP_R VIDEO/ S-VIDEO only
Lamp Runtime	Number of hours the lamp has been used is displayed.	

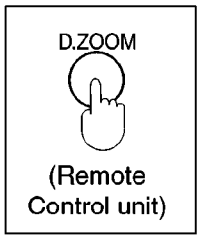
Previous screen

58

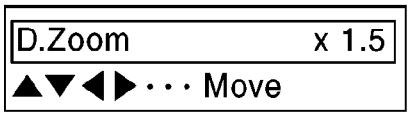
Digital Zoom Functions

You can enlarge and project specific portions of the input picture and select the enlargement ratio for this portion using the D.ZOOM Buttons on the remote control unit.





- **Press D.ZOOM Button** the picture will become bigger.



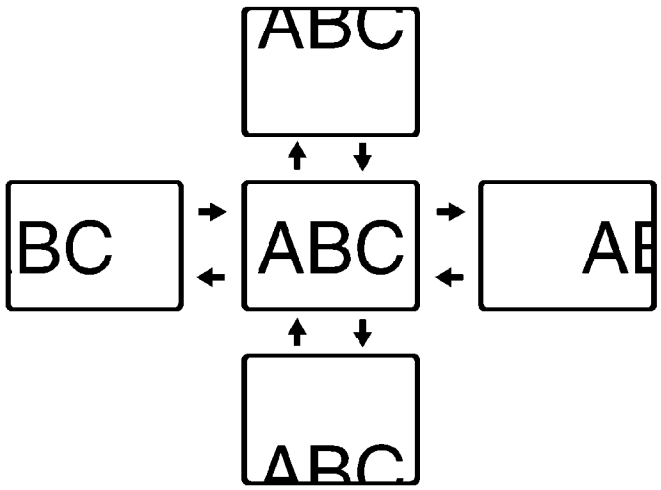
Note

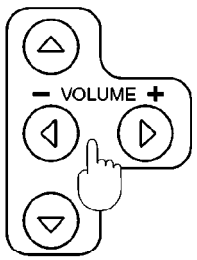
You can enlarge the centre portion of the image to one of 6 magnifications.

Previous screen

Continued on the next page...

Digital Zoom Functions





(Remote Control unit)

- **Use the ▲ and ▼ arrow Buttons** to move the position up and down.
- **Use the ◄ and ► arrow Buttons** to move the position to the left and right.

Note

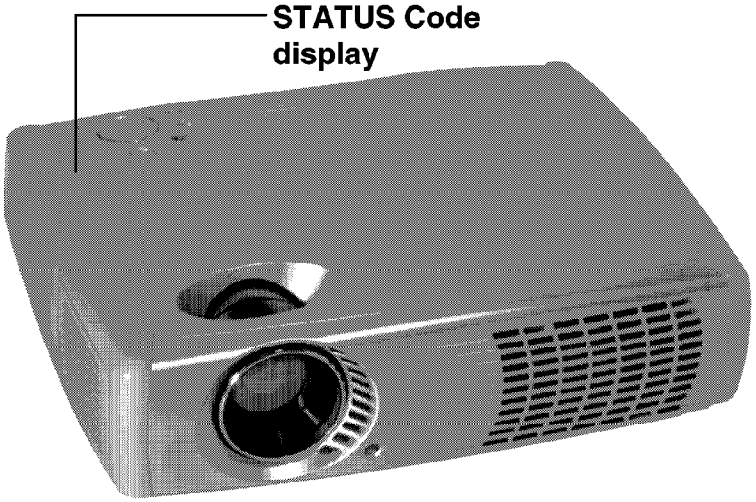
Position cannot be moved with arrow Buttons on the unit.

Previous screen

Status Code Display Indications

■ Warning Indicators

This LCD Projector has a STATUS Code Display which calls your attention to problem conditions existing inside the LCD Projector. The LCD Projector displays a status Code Indication each time an internal problem is detected.
If any of the following indications appear in the STATUS Code Display, immediately turn off the Power Button, and then see the chart to determine a course of action.



Note

Please wait one minute before turning the power back on, to allow the lamp to cool. A much longer time may be required if the projector had attained an abnormally high internal temperature.

Previous screen

Continued on the next page...

Status Code Display Indications

STATUS Code	Symptom	Problem	Possible Solution
F-L	Lamp does not light up.	• Cooling fan malfunction.	• Take the Projector to your nearest Service Center.
C-0		• Misinstalled Air Filter Unit or Lamp cover.	• Properly install Air Filter Unit or Lamp cover.
A-n		• Temperature Sensor malfunction.	• Take the Projector to your nearest Service Center.
A-0		• Clogged air filter. • Blocked air intake. • The surrounding temperature of the place of use may be too high.	• Clean the filter. • Relocate projector to a proper location. • Place Projector so that surrounding temperature is between 0 °C (32 °F) and 40 °C (104 °F) and the humidity is between 20 % and 80 % (with no condensation.)
L-n		• If the Lamp will not light after turning on the main power 2 or 3 times, the Lamp may be damaged.	• Take the Projector to your nearest Service Center.
P-2		• Lamp Voltage is not correct.	
P-3		• Abnormal temperature rise.	
P-4		• Other causes.	
L-1	Lamp operation time is over 1 900 hours.	• It is nearly time to replace the Lamp Unit.	• Replace the Lamp unit.
L-0	Lamp operation time reaches 2 000 hours.	• The Lamp Unit must be replaced.	
C-d	Forced cooling fan operating to expedite lamp replacement.	———	———

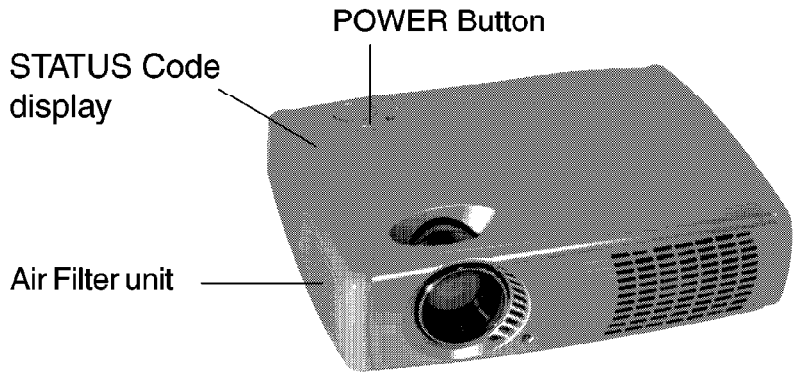
Previous screen

62

Cleaning the Air Filter

■ Air Filter

The air filter should be cleaned about every 100 hours. Also, clean the air filter if the "A-0" is indicated in the STATUS Code display.
Replace the filter when it is clogged or dirty even after cleaning.



•**Cleaning procedure** (Tools required: Vacuum Cleaner.)

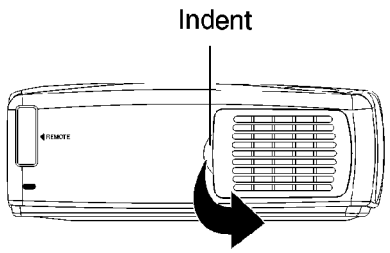
1 Set the POWER Button to OFF and unplug the power cord.

Note

Wait until the cooling fan stops and the STANDBY(R) ON(G) indicator turns solid red.

2 Remove the Air Filter unit

Hold the indent on the Air Filter unit with your hands and pull the Air Filter unit out of the LCD Projector.



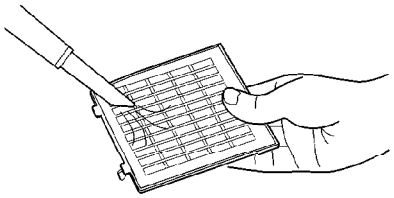
Previous screen

Continued on the next page...

Cleaning the Air Filter

3 Clean the Filter.

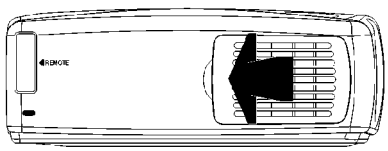
Gently remove any accumulated dust from Air Filter unit with your vacuum cleaner.



CAUTION: Operating LCD Projector with torn or damaged Filter may cause damage to LCD Projector.

4 Replace the Air Filter unit.

Slide the Air Filter into the LCD Projector so that the indentations of the filter and projector are aligned. Then, press on the arrow mark until you hear it snap into place.



- The LCD Projector power cannot be turned on unless the Air Filter unit is correctly installed.
- Using with the air filter sponge removed will result in dirt and dust being drawn in and lead to malfunction.

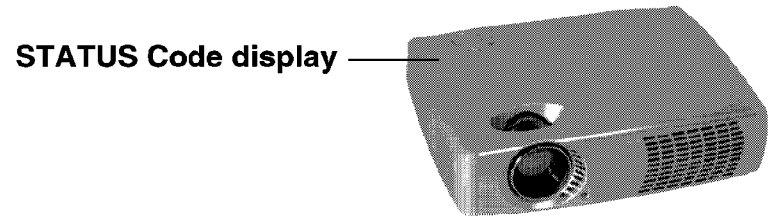
Note

If the dust cannot be removed by cleaning, it is time to replace the air filter.

Previous screen

Lamp Replacement

Warning If the Lamp does not light and the LAMP STATUS Code is "L-n," If the Lamp will not light after turning on the main power 2 or 3 times, the Lamp may be damaged. If the Lamp still does not light, the Lamp may be damaged. Because Lamp fragments could cause injury, DO NOT attempt to replace Lamp yourself. Take the LCD Projector to your dealer for repair.



■ Lamp replacement period

The LCD Projector lamp has a limited operating life of approximately 2 000 hours.
If lamp operation time exceeds 1 900 hours, "L-1" is displayed as the STATUS Code.
"Lamp replacement is recommended." will be displayed on-screen when operation time reaches 1 900 hours.

Lamp replacement is recommended.

Take the LCD Projector to your dealer for repair. (Order Lamp ET-LAC50.)

- When the lamp operation time has exceeded 1 900 hours, a warning will appear for 15 seconds when the LCD Projector power is turned on.

Previous screen

Continued on the next page...

Lamp Replacement

■ In case lamp time reaches 2 000 hours

The LCD Projector will shut itself OFF and the STATUS Code indication becomes "L-0".

Unless you change to a new lamp, POWER will be off 5 minutes later.

- If the Lamp is not replaced, turning POWER on will only cause the screen at right to be displayed for 5 minutes.

Note

The lamp used as the light source eventually wears out. The service life of the light source lamp used on the PT-LC50U is about 2 000 hours, but depending on the individual lamp's properties and the usage conditions the lamp may no longer light after less than 2 000 hours (the lamp is affected by the number of times the lamp is lit and the time span until it is relit, and these may shorten the service life). Because of this, we recommend having a replacement lamp on hand.

Previous screen

Signals that can be Input

The projection mode will be matched automatically to one of the modes which have been pre-set inside the Projector.
If a signal which differs greatly from any of the types listed below is input, the picture image may not be displayed correctly, or a blue background may be displayed.

■ RGB Signals that can be Input

	Display mode name	Signal data			
		No. of dots	Horizontal frequency (kHz)	Vertical frequency (Hz)	Dot clock frequency (MHz)
Personal Computer Signals	VGA400 (70 Hz)	640 X 400	31.47	70.08	25.175
	VGA480 (60 Hz)	640 X 480	31.47	59.94	25.175
	Macintosh 13″	640 X 480	35.00	66.67	30.241
	VESA400 (85 Hz)	640 X 400	37.86	85.08	31.500
	VESA480 (72 Hz)	640 X 480	37.86	72.81	31.500
	VESA480 (75 Hz)	640 X 480	37.50	75.00	31.500
	VESA480 (85 Hz)	640 X 480	43.27	85.01	36.000
	SVGA (56 Hz)	800 X 600	35.16	56.25	36.000
	SVGA (60 Hz)	800 X 600	37.88	60.32	40.000
	SVGA (72 Hz)	800 X 600	48.08	72.19	50.000
	SVGA (75 Hz)	800 X 600	46.88	75.00	49.500
	SVGA (85 Hz)	800 X 600	53.67	85.06	56.250
	XGA (60 Hz)*	1 024 X 768	48.36	60.00	65.000
	XGA (70 Hz)*	1 024 X 768	56.48	70.07	75.000
	XGA (75 Hz)*	1 024 X 768	60.02	75.03	78.750
	Macintosh 16″*	832 X 624	49.73	74.55	57.283
	Macintosh 19″*	1 024 X 768	60.24	74.93	80.000
	XGA (85Hz)*	1 024 X 768	68.68	85.00	94.500

Previous screen

Continued on the next page...

Signals that can be Input

	Display mode name	Signal data			
		No. of dots	Horizontal frequency (kHz)	Vertical frequency (Hz)	Dot clock frequency (MHz)
Personal Computer Signals	1 152 X 864 (70 Hz)*	1 152 X 864	63.85	70.01	94.500
	1 152 X 864 (75 Hz)*	1 152 X 864	67.50	75.00	108.000
	1 152 X 864 (85 Hz)*	1 152 X 864	77.09	85.00	121.500
	Macintosh 21"*	1 152 X 870	68.68	75.06	100.000
	1 280 X 960 (60 Hz)*	1 280 X 960	60.00	60.00	108.000
	1 280 X 960 (75 Hz)*	1 280 X 960	75.00	75.00	126.000
	1 280 X 1 024 (60 Hz)*	1 280 X 1 024	63.98	60.02	108.000
	1 280 X 1 024 (75 Hz)*	1 280 X 1 024	79.98	75.03	135.000
DTV Format Signals	480 i	664 X 485	15.73	29.97	12.650
	480 p	720 X 483	31.47	59.94	27.000
	720 p*	1 280 X 720	45.00	60.00	74.250
	1 080 i*	1 920 X 1 080	33.75	30.00	74.250
	625 i	756 X 576	15.63	25.00	14.500

Note

- *Changing the number of dots to be displayed to within 800 X 600 may cause a portion of information to be omitted, or the image quality to be degraded.
- DTV Format Signals are picture signals from a DVD or a digital broadcast.
- The Sync. signal of a DTV format signal (RGB) is only supported if the Horizontal and Vertical frequencies are separate.

Previous screen

68

Signals that can be Input

■ Component Signals (YP_BP_R) that can be Input

Display mode name		Signal data			
		No. of dots	Horizontal frequency (kHz)	Vertical frequency (Hz)	Dot clock frequency (MHz)
DTV Format Signals	480 i	664 X 485	15.73	29.97	12.650
	480 p	720 X 483	31.47	59.94	27.000
	720 p*	1 280 X 720	45.00	60.00	74.250
	1 080 i*	1 920 X 1 080	33.75	30.00	74.250
	625 i	756 X 576	15.63	25.00	14.500

Note

- ★Changing the number of dots to be displayed to within 800 X 600 may cause a portion of information to be omitted, or the image quality to be degraded.
- DTV Format Signals are picture signals from a DVD or a digital broadcast.

Previous screen

Signals that can be Input

■ S-VIDEO/VIDEO Signal that can be Input

Signal format name	Horizontal scanning frequency (kHz)	Vertical scanning frequency (Hz)	Colour sub-carrier frequency (MHz)
AUTO	Selected automatically.		
NTSC	15.75	60.00	3.58
NTSC4.43			4.43
PAL-M			3.58
PAL	15.63	50.00	4.43
PAL-N			3.58
SECAM			4.25 or 4.41

Note

- NTSC and PAL-M have the same scanning frequencies and color sub-carrier frequencies, but they have different color modulation methods. Because of this, if the incorrect setting is selected, color pictures may appear in black-and-white.
- The video system screen is not displayed with no S-VIDEO/VIDEO input signal.

Previous screen

70

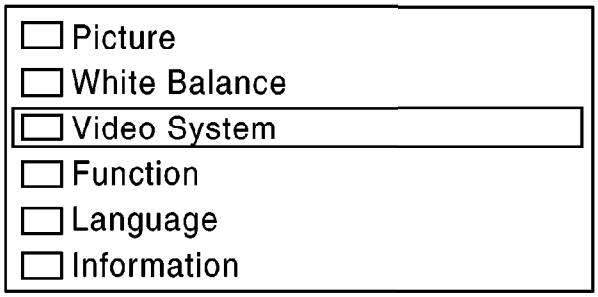
S-VIDEO/VIDEO Signal Format Selection

If the correct signal format is not selected and the picture does not appear normal when VIDEO or S-VIDEO signal is being input, select the format by the following procedure. This function is set to "AUTO" at the time of shipment from the factory, so that the projector can normally be used with this setting.

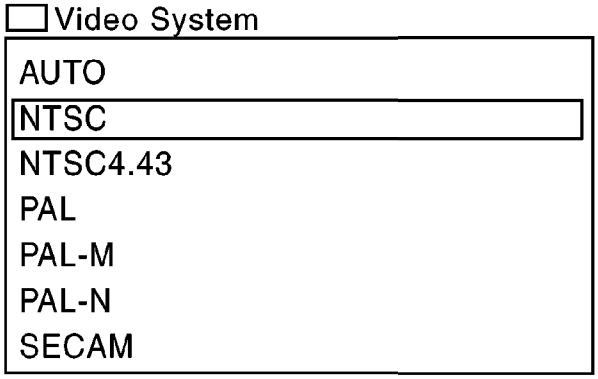
• Setting procedure

1 Press MENU to display the menu.

2 Press ▲ or ▼ to select "Video System", **and then ENTER** to display the screen.



3 Press ▲ or ▼ to switch the setting to "AUTO", "NTSC", "NTSC4.43", "PAL", "PAL-M", "PAL-N" or "SECAM" until a normal picture is obtained.



Note

If using a signal source with poor picture quality, such as a dubbed tape, it may not be possible to get the picture to display properly.

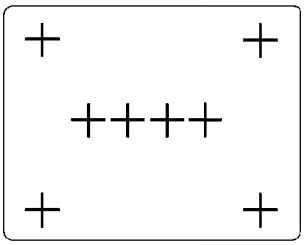
Previous screen

71

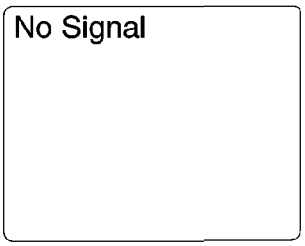
Blue (Black) Screen with No Input Signal

The LCD Projector is equipped with an internal Blue (Black) Screen function which turns the screen blue black when the video or personal computer equipment connected to the input jack is turned off, or when there is nothing connected to the input jack.

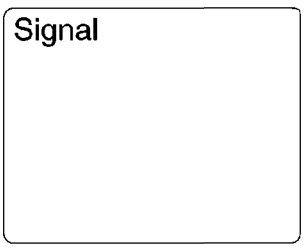
- If the power is turned on when no input signal is input to the LCD Projector, the screen will turn blue. The Focus screen appears only until the video or personal computer equipment is connected to the input jack and turned on.



- During operation, if the input signal is terminated, the screen goes black and "No Signal" will be displayed.



- If an unrecognizable signal is input, the screen goes black and "Signal" is displayed.
- When RGB signal is input, please input the registered signals found on "Signals that can be Input".



Previous screen

Optional Accessories

For ordering instructions, see the accessory order form page.

(1) Full Functional Remote Control Unit (ET-RMLC50)

(2) Replacement Lamp (ET-LAC50)

(3) D-sub15-BNC5 Adapter Cable (ET-ADBNC)

Note

When the full functional remote control unit is used, you can operate the wireless mouse and laser pointer features.

Previous screen

3 SERVICE CAUTIONS AND NOTES

3.1. SERVICE POSITION

Because of this projector's structure, service should be provided by turning this projector over, accordingly the screens are seen reversely during the service.

The position shown in Fig. 3-1-2 is used for checking, adjusting and replacing parts.

Extension Cable (LSUA0010, LSUA0032) is necessary for servicing as shown in Fig. 3-1-1.

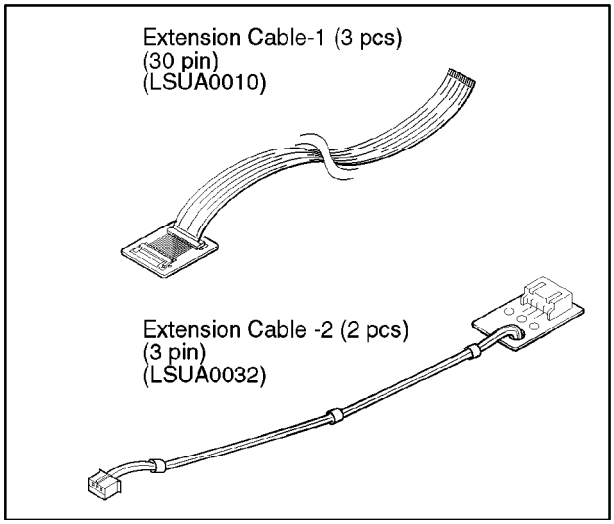


Fig. 3-1-1

1. In the order described in the "4.2. Disassembly Method of Cabinet Parts" of "4. Disassembly/Assembly Procedures", remove the Bottom Case Unit.
2. Remove the Joint Plate L, R and Ballast Holder as shown in Fig. 4-2-7.
3. Disconnect connectors P1901, P1902, P2002-P2004 and P3501-P3503 on the Main C.B.A. as shown in Fig. 4-2-8.
4. Connect Extension Cables as follows:
   a. Connect Extension Cable-1 (30 pin) between P3501 on the Main C.B.A. and the LCD Red Unit.
   b. Connect Extension Cable-1 (30 pin) between P3502 on the Main C.B.A. and the LCD Green Unit.
   c. Connect Extension Cable-1 (36 pin) between P3503 on the Main C.B.A. and the LCD Blue Unit.
   d. Connect Extension Cable-2 (3 pin) between P1901 on the Main C.B.A. and the Duct Fan (1).
   e. Connect Extension Cable-2 (3 pin) between P1902 on the Main C.B.A. and the Duct Fan (2).
5. Carefully place the Main C.B.A. as shown in Fig. 3-1-2.
6. After servicing, remove Extension Cables.
7. Reinstall the Main C.B.A., and reconnect connectors.
8. Make sure that all wires and leads are placed in their original position.

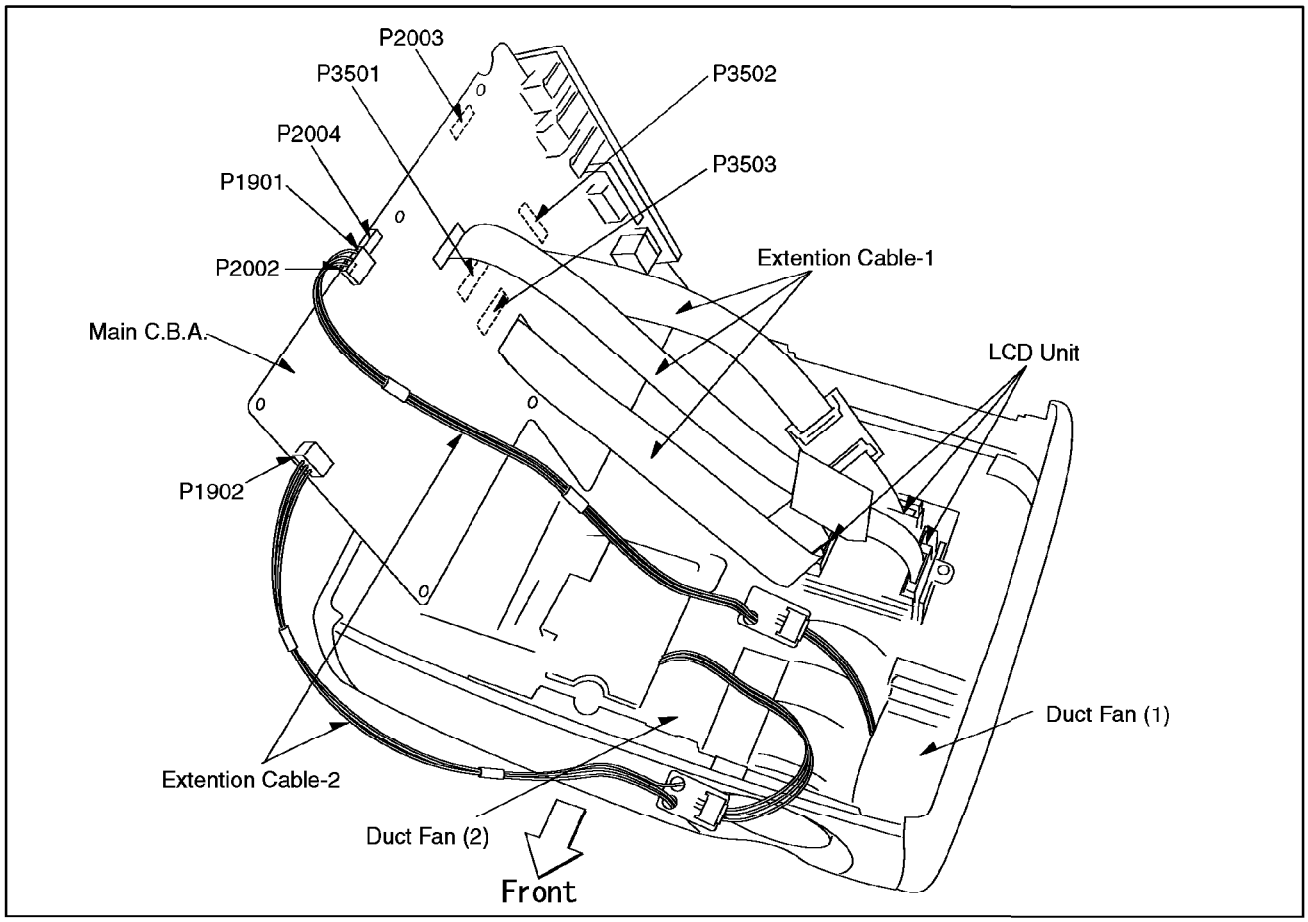


Fig. 3-1-2

3.2. How to display Lamp operation time (Service Mode)

1. Under the condition of the Lamp Cover SW "ON", plug in the Power Cord.
2. Input a Signal.
3. Connect a jumper wire between TP2007 and TP2008 on Main C.B.A. for over 5 seconds as shown in Fig. 3-2-1.

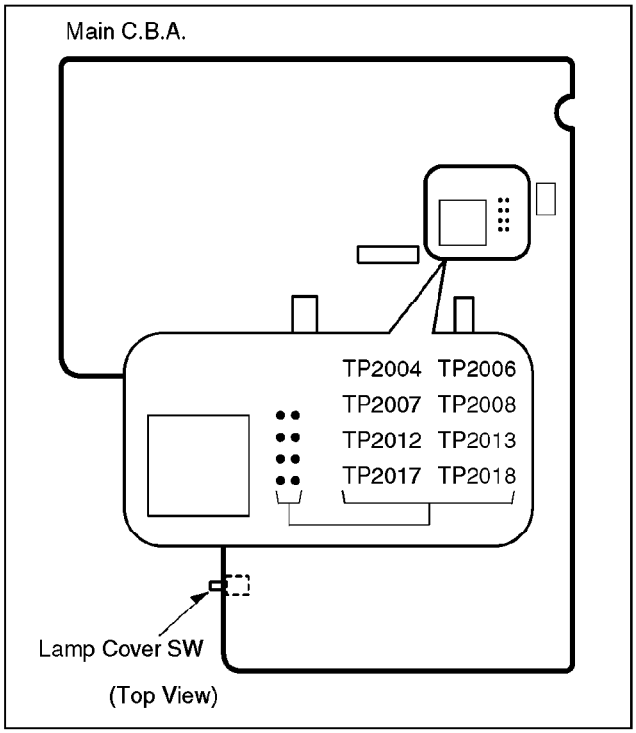


Fig. 3-2-1

4. Lamp operation time will be displayed as shown in Fig. 3-2-2.

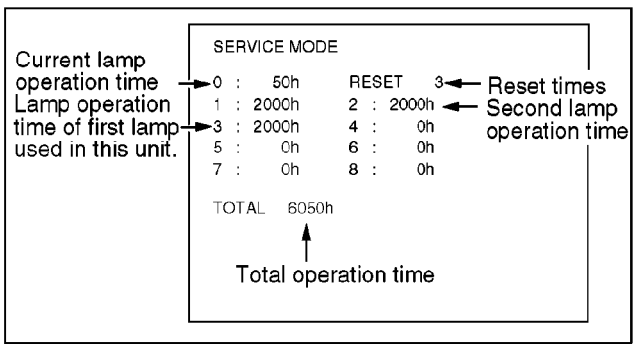


Fig. 3-2-2

5. Connect a jumper wire between TP2007 and TP2008 for over 5 seconds again or press MENU button on remote control in order to release from service mode.

Note:
After replacing Main C.B.A., memory data such as history of lamp operation time will be reset. However, it can be remained by installing EEPROM IC (IC2006) to replaced Main C.B.A. from original Main C.B.A.

3.3. How to initialize EEPROM IC

If EEPROM IC (IC2006) on Main C.B.A. are replaced:

After replacing EEPROM IC (IC2006), be sure to perform each of following steps in the order presented.

1. Connect a jumper wire between TP2017 and TP2018 on Main C.B.A. for over 5 seconds to set to factory set mode. Then, remove the jumper wire.
2. "FACTORY" appears on screen.
3. Connect a jumper wire between TP2017 and TP2018 again for over 5 seconds to initialize EEPROM IC. Then, remove the jumper wire.
4. "SELF CHECK" appears on screen.
5. Remove jumper wires and "MEMORY OK" appears on screen.
6. Perform adjustments 5.4.1. through 5.4.8., 5.4.11. and 5.4.12.
7. After completing all adjustments, press the MENU button to memorize adjustment data in EEPROM IC and release from the Factory Adjust mode.

   Otherwise, adjustment data will be cancelled.

Note:

When initializing EEPROM IC, memory data such as history of lamp operation time and adjustment data will be reset.

3.4. Lamp replacement procedure

Caution:

Because of possibility of injury, strictly follow the replacement procedure below.

1. After the cooling fan has stopped, and STANDBY(R) ON(G) indicator turns solid red, unplug the power cord.

   Note:

   Please wait more than one hour for lamp replacement.

   [If you need to replace the lamp more urgently]

   - The LCD Projector has a forced cooling feature. After the POWER switch is turned OFF, and sometime during about the first minute of the normal cooling fan operation, press MENU for 5 seconds. The cooling fan will change to high speed forabout 10 minutes. (The "C-d" STATUS CODE will be displayed.)

2. Loosen 2 screws (A) using a screwdriver as shown in Fig. 3-4-1.
3. Remove the Lamp Cover Unit.

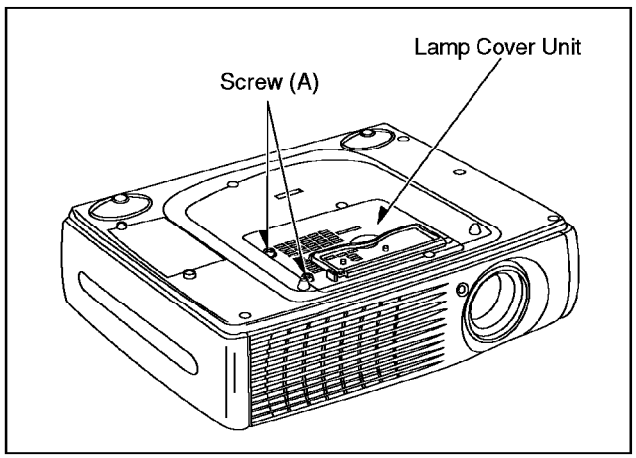


Fig. 3-4-1

4. Push the portion (a) of the Lamp Hold Lever to the direction of the arrow as shown in Fig. 3-4-2 and release the Lamp Hold Lever from the Fastening Hook.
5. Carefully pull the Lamp Unit.

   WARNING:

   - The lamp may be hot. Be careful when handling.

   CAUTION

   - High-pressure lamp may explode if improperly handled.
   - Danger of injury due to lamp fragments.

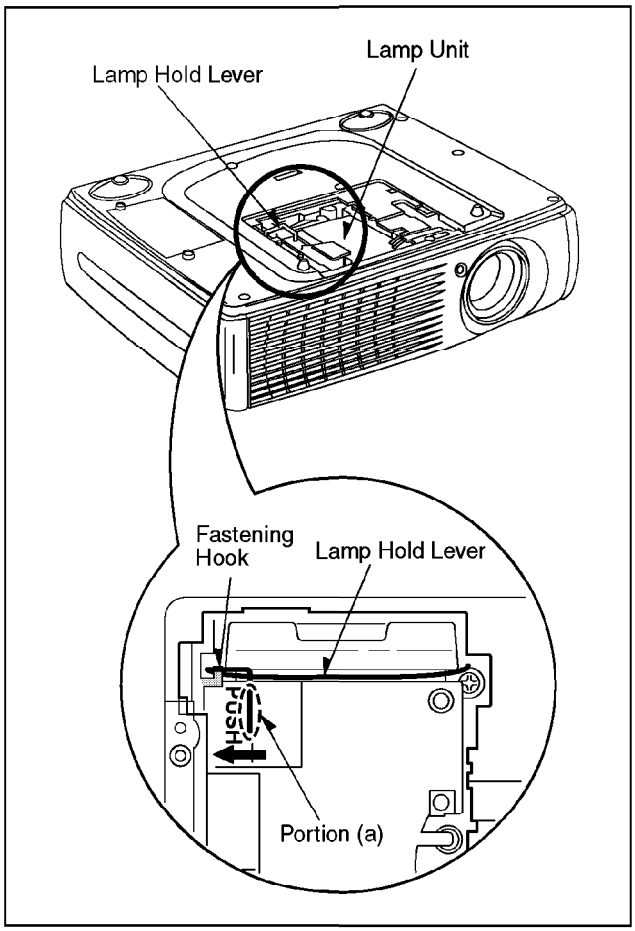


Fig. 3-4-2

6. Install the new Lamp Unit.

   Caution:

   - Make sure that the Lamp Hold Lever is in the original position as shown in Fig. 3-4-2.
   - Properly dispose of old Lamp.

7. Replace 2 screws (A) using a screwdriver as shown in Fig. 3-4-1.
8. Plug the power code.
9. Press **POWER** and **INPUT** buttons together for about 5 seconds when lighting up red by POWER LED to reset lamp time.

3.5. Cleaning the Projection Lens

Use lens cleaning paper and cleaner available at your local camera shop, etc.Dampen the cleaning paper with cleaner and gently wipe the surface of the lens from the center outward to remove dust as shown in Fig. 3-5-1.

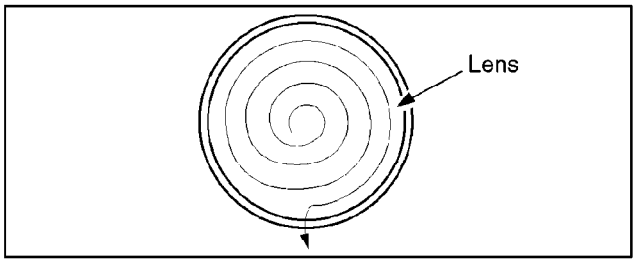


Fig. 3-5-1

Note:

Do not use excessive force when cleaning the lens.

3.6. Connection of the Flexible Cables to Trap Connector

Fig No.	No. of Pins	C.B.A.	Type
P3501	30 pin	Main C.B.A.	A
P3502	30 pin	Main C.B.A.	B
P3503	30 pin	Main C.B.A.	A
P2003	18 pin	Main C.B.A.	B

(Removal and Installation of Flexible Cable)

- Removal

(Type A)

1. On the Trap Connector, swing the Locking Tab to release the Trap portion of the Connector. Then pull Flexible Cable out to remove as shown in Fig. 3-6-1.

(Type B)

1. On the Trap Connector, swing both ends of the Locking Tab to release the Trap portion of the Connector. Then pull Flexible Cable out to remove as shown in Fig. 3-6-1.

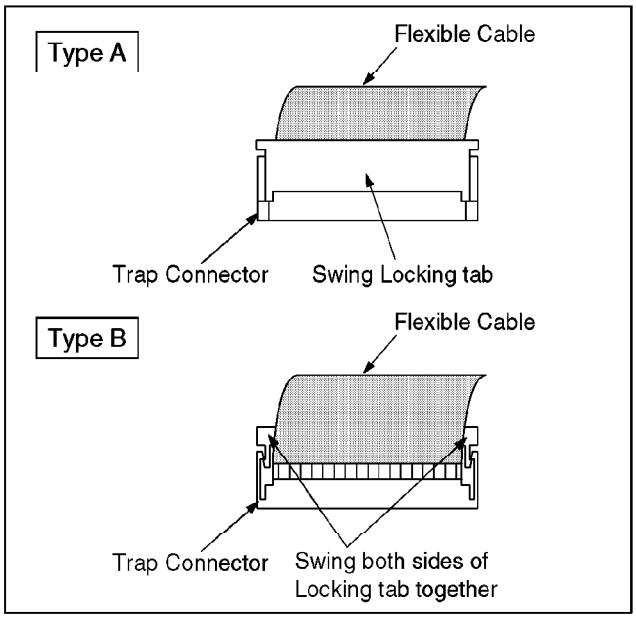


Fig. 3-6-1

- Installation

1. Insert the end of the Flexible Cable into the Trap Connector.
2. Without twisting the Cable, press the Locking Tab in into its locked positions.
3. Gently and slightly pull up on the Cable to confirm if it is installed firmly.

3.7. External Interface (RS-232C)

3.7.1. Outlined Function

Through connection with external equipment (e.g. personal computer), it can control the projector from outside or can inquire about status.

3.7.2. Requirements for Receiving

- Lamp control command or inquiry command can be received ordinarily.
- Other commands can be received when lamp is set at ON only.
  (When lamp is set at OFF, it does communication response to command only and does no actual work.)

3.7.3. Operation

1. Communication
   - Speed : 19 200 bps (ordinary control)
   - Parity : NONE
   - Split bit : 1 bit
   - Character length : 8 bit
   - XON/OFF : NONE
2. Connection

   In this case, the projector is DCE (Data Circuit Ending device). Connect it with the personal computer by a straight cable.
3. Configuration of Command

   a. Command Format (Personal computer→Projector)

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7 - 9	Since Byte 10
Magic Number		Type	Packet Size		CRC		Command	Parameter
0xBE	0xEF	type	size lo	size hi	crc lo	crc hi	command	parameter

Data Name	Description		Data Type
Magic Number	Command transmission starting flag	(0xBE, 0xEF fixed)	BINARY
Type	Classification of command codes of Byte 7 and those that follow	(Refer to Command List)	BINARY
Packet Size	Number of bytes of command codes of Byte 7 and those that follow	(Refer to Command List)	BINARY
CRC	Enciphered data misconception preventing code	(CRC hi = CRC lo = 0x00 fixed)	BINARY
Command	Command for actual control	(Refer to Command List)	ASCII
Parameter	Parameter attached to command	(Refer to Command List)	ASCII

   b. Response (Projector→Personal computer)

   At the end of a command, either one of the following is returned.

   Put the response data between [STX] and [ETX] , and with [ACK] at the end.

   (At a normal end)
   - On execution of a control command

     [STX] [Command] [(parameter)] [ETX] [ACK]
   - On execution of a inquiry command

     [STX] [(parameter)] [ETX] [ACK]

   (At an abnormal end, or on reception of an invalid command/parameter))
   - [STX] E R 4 N_2 N_3 [ETX] [ACK]

     N_2 and N_3 show error contents.
     - ER401 = Command invalid (or abnormal end)
     - ER402 = Parameter invalid

3.7.4. Command List

3.7.4.1. Control command (The parameter can not be omitted)

Command Name <>: Parameter Format	Description	Type	Packet Size		Projector Replying <>: Parameter Format
			size_hi	size_lo	
PON	POWER ON	0x80	0x00	0x03	PON
POF	POWER OFF	0x80	0x00	0x03	POF
IIS <input signal>	INPUT SELECT	0x82	0x00	0x06	IIS <input signal>
ORF <RGB signal>	RGB INPUT TERMINAL SETTING	0x81	0x00	0x04	ORF <RGB signal>
AVL <volume>	AUDIO VOLUME ADJUSTMENT	0x82	0x00	0x06	AVL <volume>
AMT <off on>	AUDIO MUTE ON/OFF	0x81	0x00	0x04	AMT <off on>
OPM <off on>	VIDEO MUTE ON/OFF	0x81	0x00	0x04	OPM <off on>

3.7.4.2. Inquiry command

Command Name	Description	Type	Packet Size		Projector Replying <>: Parameter Format
			size_hi	size_lo	
Q$S	The confirmation of the lamp condition	0x80	0x00	0x03	<lamp status>

3.7.4.3. Parameter Format

Parameter Format	Parameter Size (Byte)	Parameter Definition
<input signal>	3	VID = SVD = VIDEO (or S-VIDEO) TERMINAL INPUT RGB = RGB (or $YP_B P_R$) TERMINAL INPUT
<RGB signal>	1	0 = RGB, 1 = $YP_B P_R$
<volume>	3	DECIMAL SYSTEM (without the mark) (000 ~ 063)
<off on>	1	0 = OFF, 1 = ON
<lamp status>	1	0 = STANDBY, 1= DURING LAMP LIGHTING-UP CONTROL, 2 = LAMP ON CONDITION, 3 = DURING LAMP GOING-OUT CONTROL

3.8. Replacement Procedures for CSP(Chip Size Package) IC

3.8.1. Equipment

1) Spot Heater

2) Vaccum Pick-up

3.8.2. Preparation

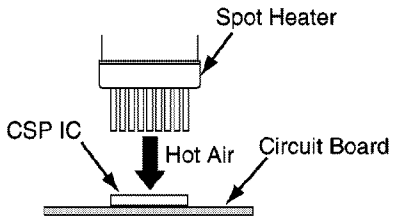
Fixture	Preparation for Fixture	Condition		Warming-up
		Heat Control Level	Air Control Level	
Spot Heater	Set Spot Heater over CSP IC.	Level 8.5 (245 °C)	MAX	After setting fixtures, turn on the power. Then, wait for approx. 5 minutes to stabilize air condition.
Reference for Temperature				

Fig.3-8-1

3.8.3. Removal of CSP IC

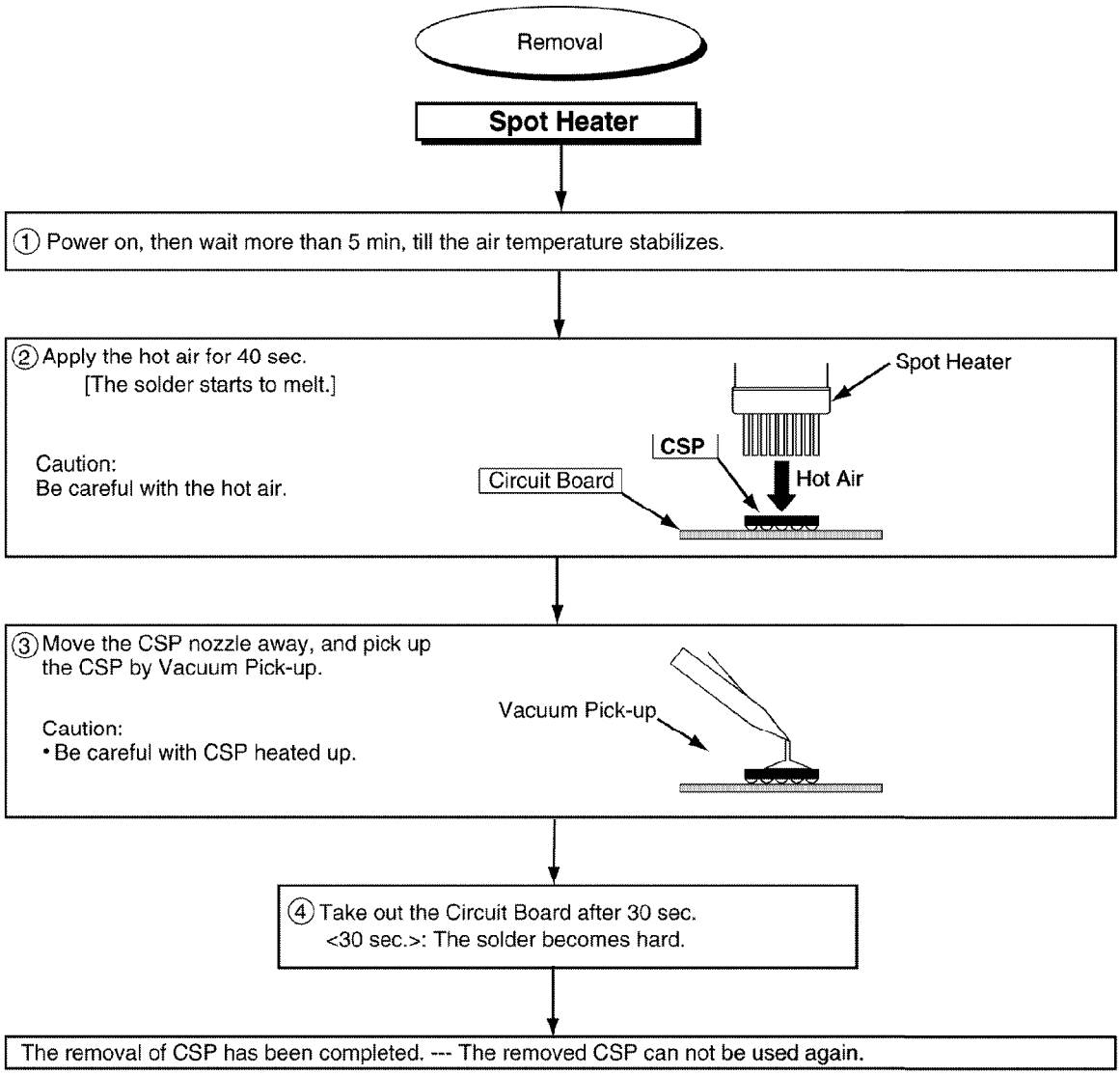

Removal
Spot Heater
① Power on, then wait more than 5 min, till the air temperature stabilizes.
② Apply the hot air for 40 sec.
[The solder starts to melt.]
Caution:
Be careful with the hot air.
Spot Heater
CSP
Hot Air
Circuit Board
③ Move the CSP nozzle away, and pick up the CSP by Vacuum Pick-up.
Caution:
• Be careful with CSP heated up.
Vacuum Pick-up
④ Take out the Circuit Board after 30 sec.
<30 sec.>: The solder becomes hard.
The removal of CSP has been completed. --- The removed CSP can not be used again.

Fig.3-8-2

3.8.4. Installation of CSP IC

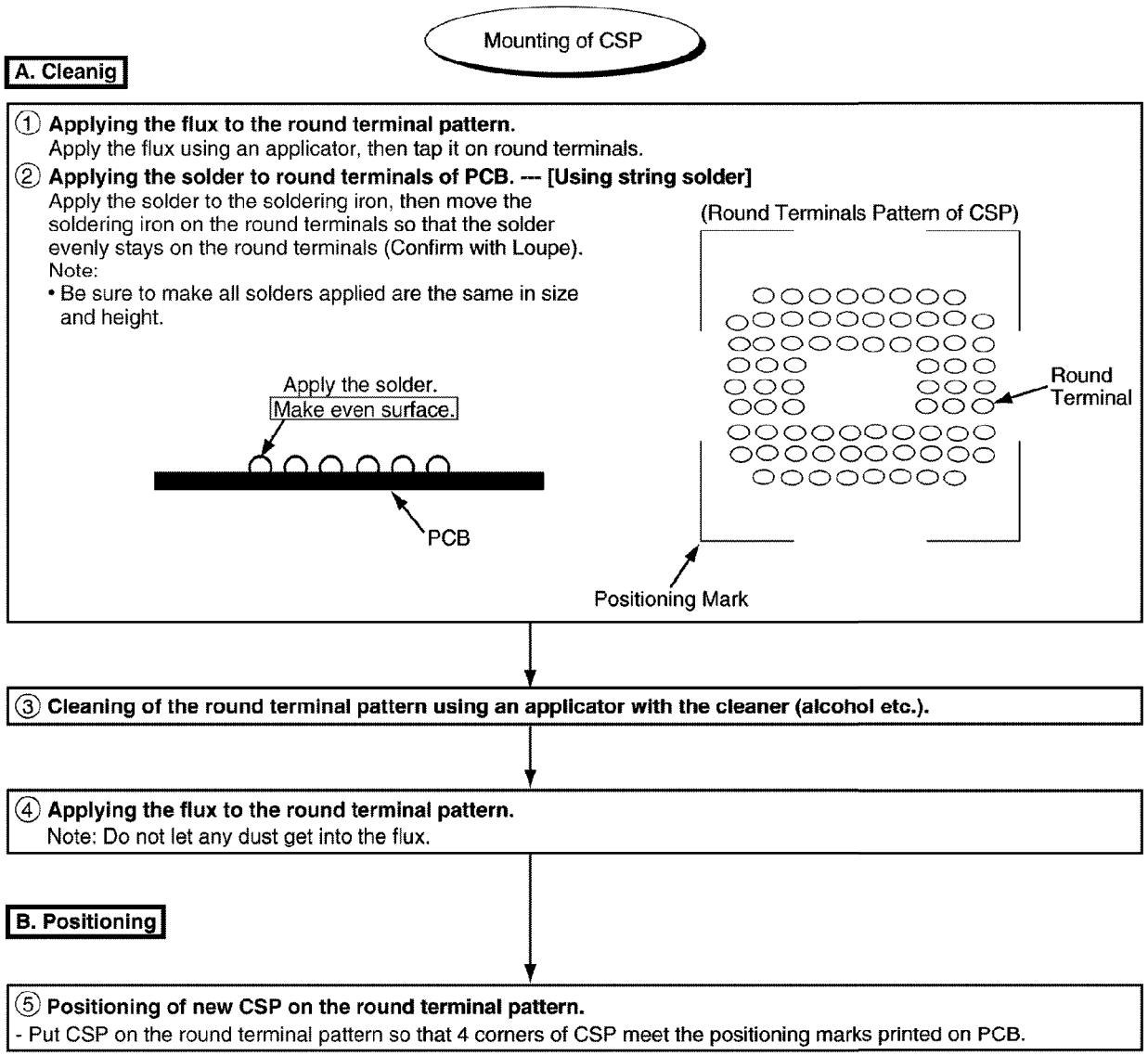

Mounting of CSP
A. Cleanig
① Applying the flux to the round terminal pattern.
Apply the flux using an applicator, then tap it on round terminals.
② Applying the solder to round terminals of PCB. --- [Using string solder]
Apply the solder to the soldering iron, then move the soldering iron on the round terminals so that the solder evenly stays on the round terminals (Confirm with Loupe).
Note:
• Be sure to make all solders applied are the same in size and height.
Apply the solder.
Make even surface.
PCB
(Round Terminals Pattern of CSP)
Round Terminal
Positioning Mark
③ Cleaning of the round terminal pattern using an applicator with the cleaner (alcohol etc.).
④ Applying the flux to the round terminal pattern.
Note: Do not let any dust get into the flux.
B. Positioning
⑤ Positioning of new CSP on the round terminal pattern.
- Put CSP on the round terminal pattern so that 4 corners of CSP meet the positioning marks printed on PCB.

Fig.3-8-3

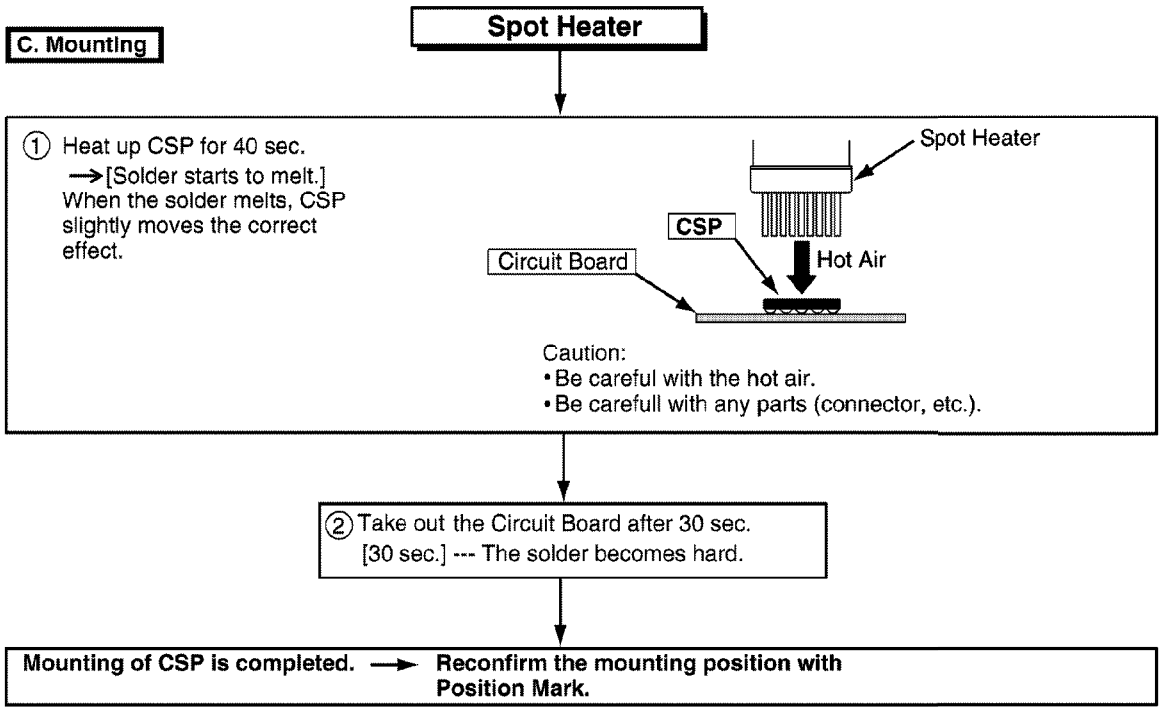

C. Mounting
Spot Heater
① Heat up CSP for 40 sec.
→[Solder starts to melt.]
When the solder melts, CSP slightly moves the correct effect.
Spot Heater
CSP
Hot Air
Circuit Board
Caution:
• Be careful with the hot air.
• Be carefull with any parts (connector, etc.).
② Take out the Circuit Board after 30 sec.
[30 sec.] --- The solder becomes hard.
Mounting of CSP is completed. → Reconfirm the mounting position with Position Mark.

Fig.3-8-4

3.9. How to replace the lithium battery

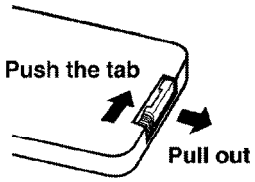
■ Inserting the battery

Insert the lithium battery which is supplied with the remote control unit, making sure that the polarities are correct.

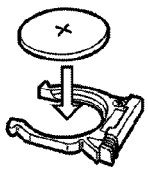
WARNING:
Replace battery with CR2025 only. Use of another battery may present a risk of fire or explosion.

Caution: Battery may explode if mistreated. Dispose of used battery promptly. Keep away from children. Do not recharge, disassemble or dispose of in fire.

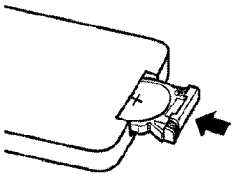
1. While pushing the battery holder tab to the right, pull out the battery holder.



2. Insert the battery into the battery holder so that the + side is facing upward.



3. Insert the battery holder.



Note
- Do not drop the remote control unit.
- Keep the remote control unit away from liquids.
- Remove the battery if not using the remote control unit for long periods.

3.10. Mouse Remote Control Unit (Optional Accessory)

The Mouse Remote Control Unit is not serviceable.

Do not try to disassemble the unit.

4 DISASSEMBLY/ASSEMBLY PROCEDURES

4.1. DISASSEBLY FLOWCHART OF CABINET PARTS

This flowchart indicates the disassembly steps of the cabinet parts and the P.C. Boards. When reassembling, perform the step(s) in the reverse order.

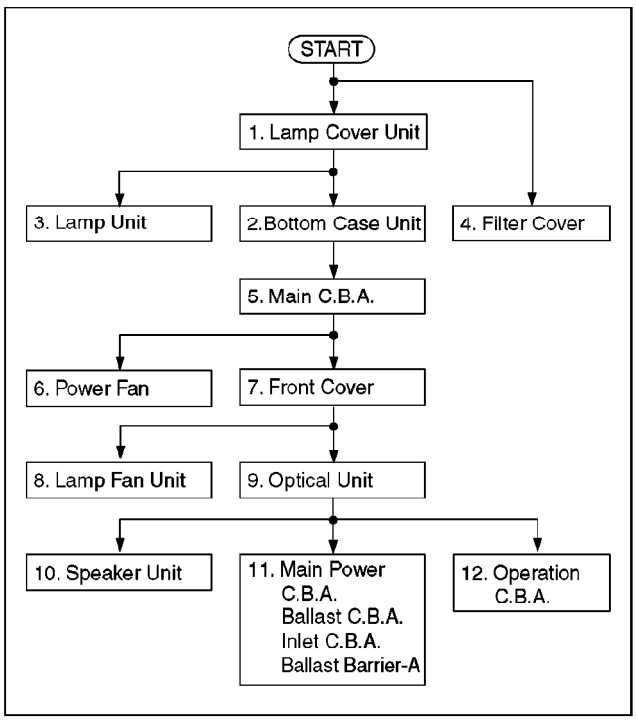


Fig. 4-1-1

4.2. DISASSEMBLY METHOD OF CABINET PARTS

4.2.1. Removal of the Lamp Cover Unit

1. Loosen 2 screws (A) as shown in Fig. 4-2-1.

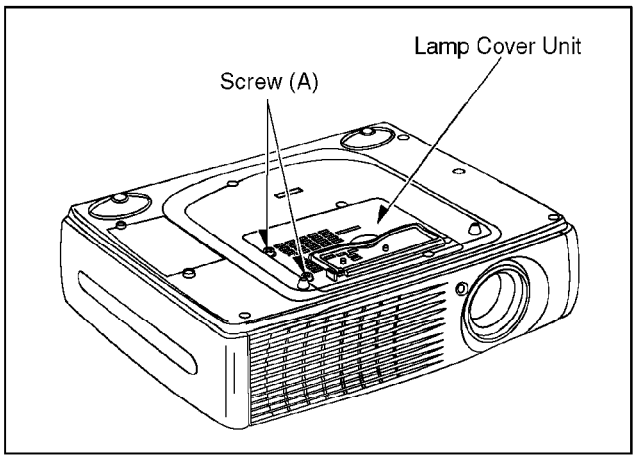


Fig. 4-2-1

4.2.2. Removal of the Bottom Case Unit

1. Remove 4 screws (B), 6 screws (C) and a screw (D) as shown in Fig. 4-2-2.

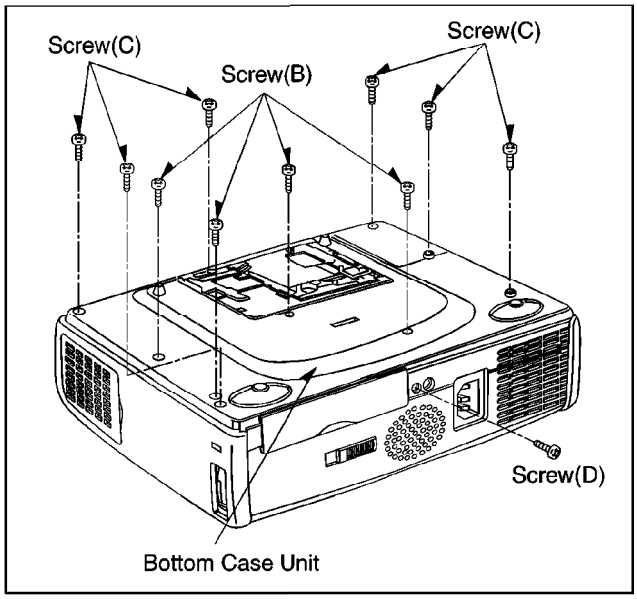


Fig. 4-2-2

2. Carefully pull the Tab (A) side of the Bottom Case Unit as shown in Fig. 4-2-3.
3. Carefully remove the Bottom Case Unit with paying attention to the Tab (B).

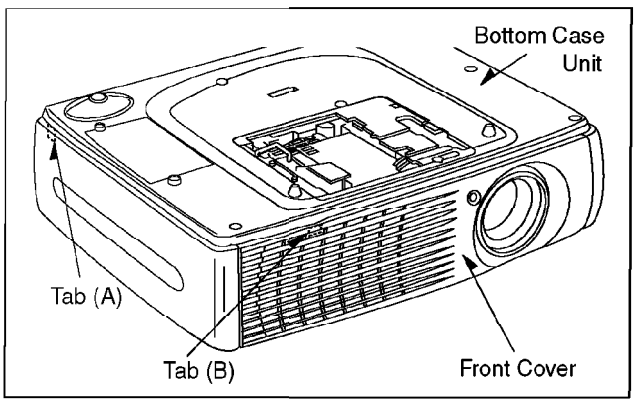


Fig. 4-2-3

Assembly Note:

When removing the bottom Case Unit, be sure to remove the Lamp Cover Unit first.

If it is assembled without removing the Lamp Cover Unit, the Interlock switch of the Main C.B.A. will be damaged. (If it is damaged, the Projector won't operate and the indication of it is "C-0".)

4.2.3. Removal of the Lamp Unit

1. Push the portion (a) of the Lamp Hold Lever to the direction of the arrow as shown in Fig. 4-2-4 and release the Lamp Hold Lever from the Fastening Hook.
2. Carefully pull the Lamp Unit.

Caution:

Do not touch the Lamp Unit until it is completely cooled off.

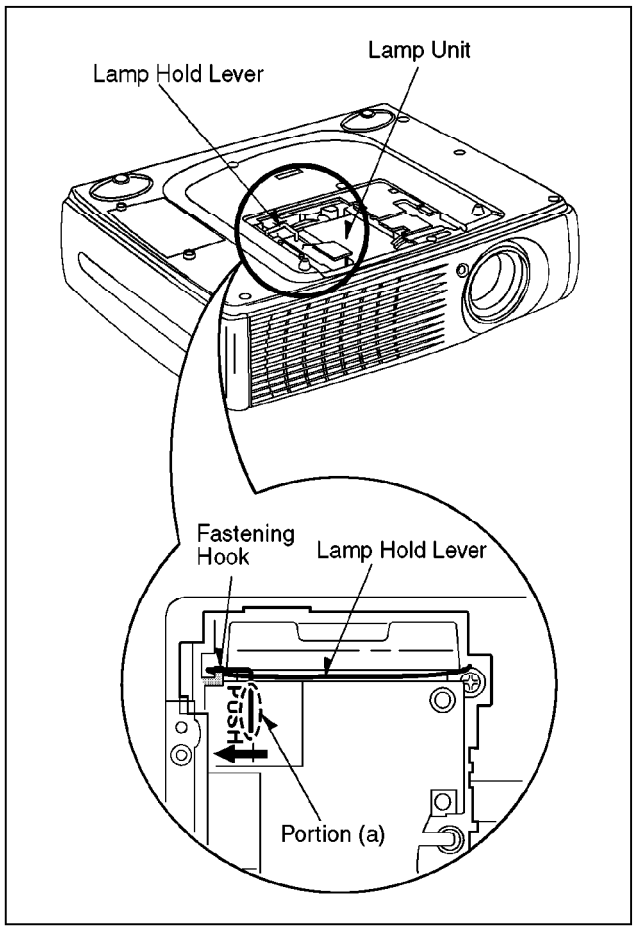


Fig. 4-2-4

Assembly Note:

Make sure that the Lamp Hold Lever is in the original position as shown in Fig. 4-2-4.

4.2.4. Removal of the Filter Cover

1. Hold the indent on the Filter Cover and pull the Filter Cover with the Filter as shown in Fig. 4-2-5.

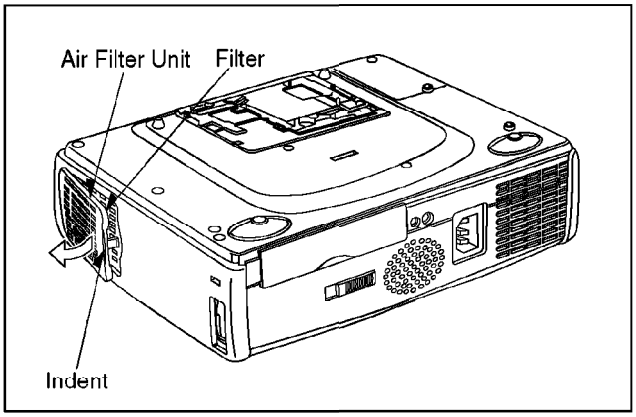


Fig. 4-2-5

4.2.5. Removal of the Main C.B.A.

1. Remove a screw (E) as shown in Fig. 4-2-6.

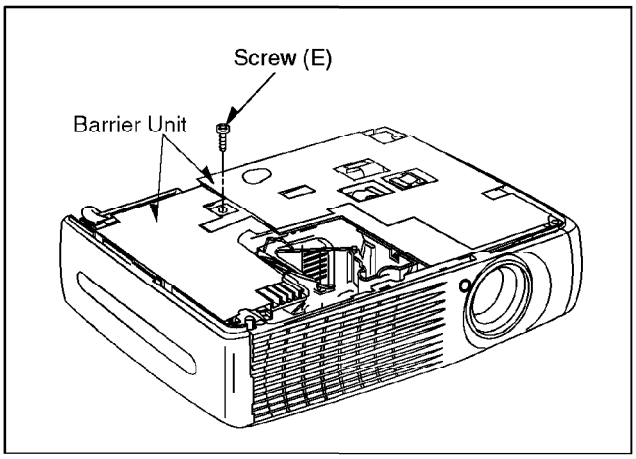


Fig. 4-2-6

2. Open the Barrier Unit.
3. Remove the Joint Plate R, L and the Ballast Holder as shown in Fig. 4-2-7.

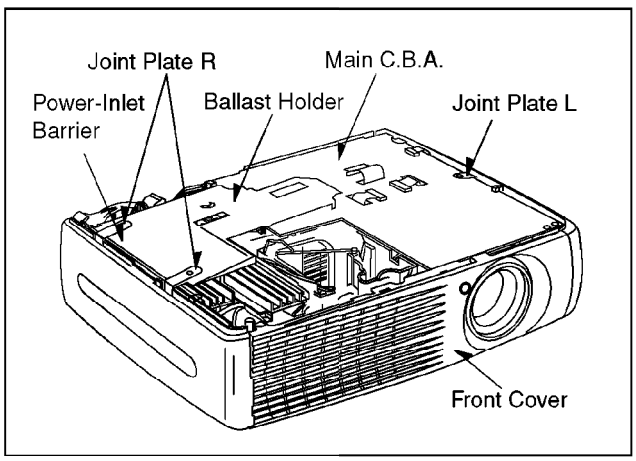


Fig. 4-2-7

4. Disconnect 13 connectors P1901-P1907, P2002-P2004, P3501-P3503 and P4001 on the Main C.B.A as shown in Fig. 4-2-8.

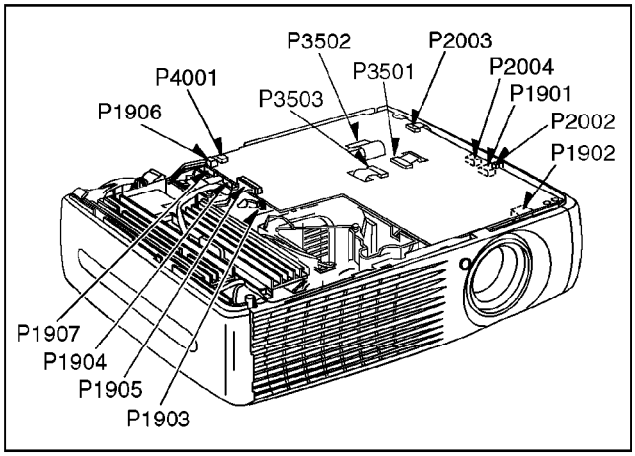


Fig. 4-2-8

Assembly Note:

Make sure that the Joint Plate R, L and the Ballast Holder are in their original position as shown in Fig. 4-2-7.

4.2.6. Removal of the Power Fan

1. Carefully pull out the Power Fan with the Fan Piece as shown in Fig. 4-2-9.

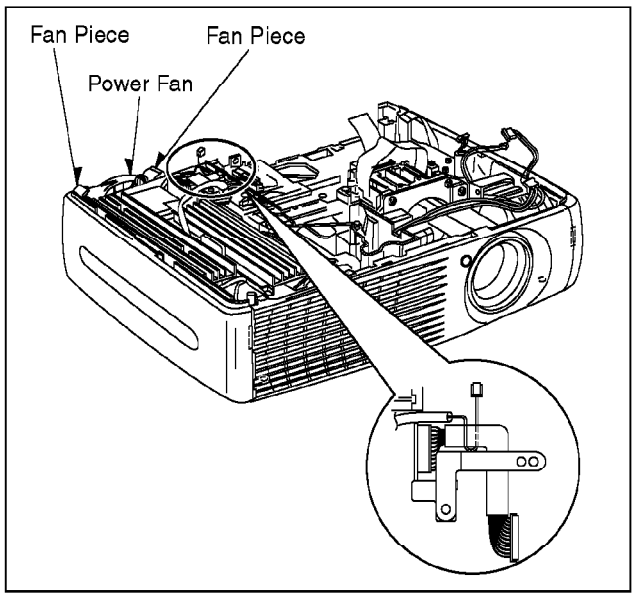


Fig. 4-2-9

Assembly Note:

1. Installing the Power Fan so that the name plate faces in.
2. Make sure that the connector cable of the power Fan is in the original position as shown in Fig. 4-2-9.

4.2.7. Removal of the Front Cover

1. Remove 3 screws (F) as shown in Fig. 4-2-10.
2. Carefully pull and remove the portion (a) of the Front cover in the direction of the arrow with paying attention to the Tab (A).
3. Remove the Front cover with paying attention to the Tab (B).

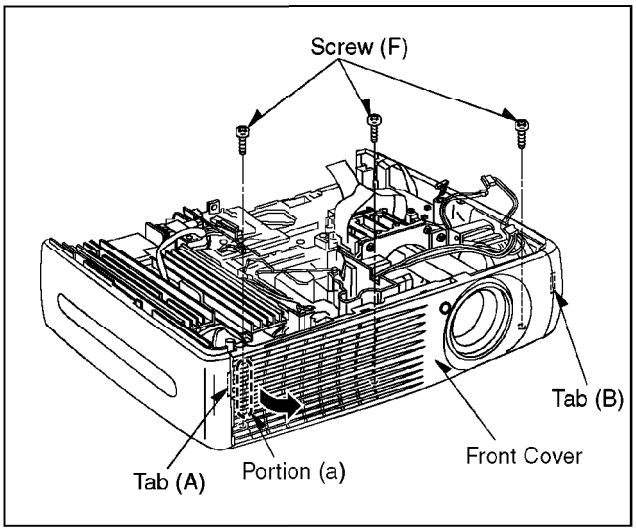


Fig. 4-2-10

4.2.8. Removal of the Lamp Fan Unit

1. Remove 3 screws (G) as shown in Fig. 4-2-11.
2. Remove the Lamp Fan Unit with the Front Barrier L and R.

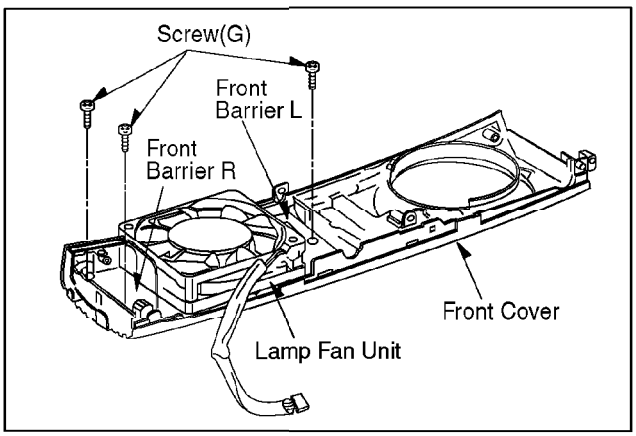


Fig. 4-2-11

Assembly Note:

Installing the Lamp Fan Unit so that the name plate faces to the side of the Front Cover.

4.2.9. Removal of the Optical Unit

1. Remove the Main Grounding Plate as shown in Fig. 4-2-12.
2. Carefully pull out the Optical Unit.

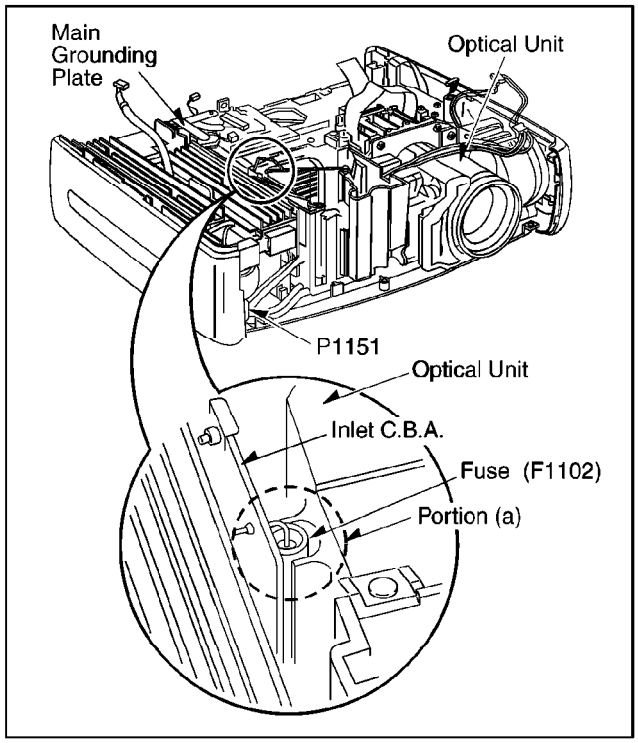


Fig. 4-2-12

3. Remove a screw (H) as shown in Fig. 4-2-13 and remove the Lamp Connector.

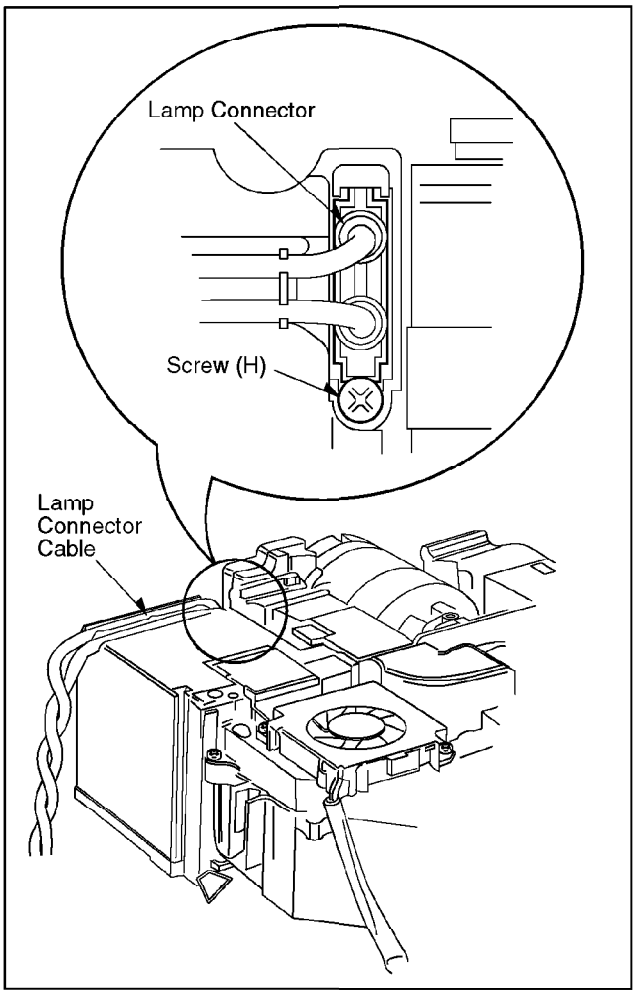


Fig. 4-2-13

Assembly Note:

1. Twist the Lamp Connector cable 3 times on the right and insert in the original position as shown in Fig. 4-2-13.
2. When installing the Lamp Connector, be careful of the direction of the insertion as shown in Fig. 4-2-13.
3. Before installing the Optical Unit, be sure to remove the Filter Cover first. If it is installed without removing the Filter Cover, the Filter Switch may be damaged.
4. When installing the Optical Unit, make sure that the position of portion (a) is at the fuse (F1102) and pay attention not to nip the connector cable of P1151 under the Optical Unit as shown in Fig. 4-2-12.

4.2.10. Removal of the Speaker Unit

1. Detach the tape and carefully pull out the Speaker Unit as shown in Fig. 4-2-13.

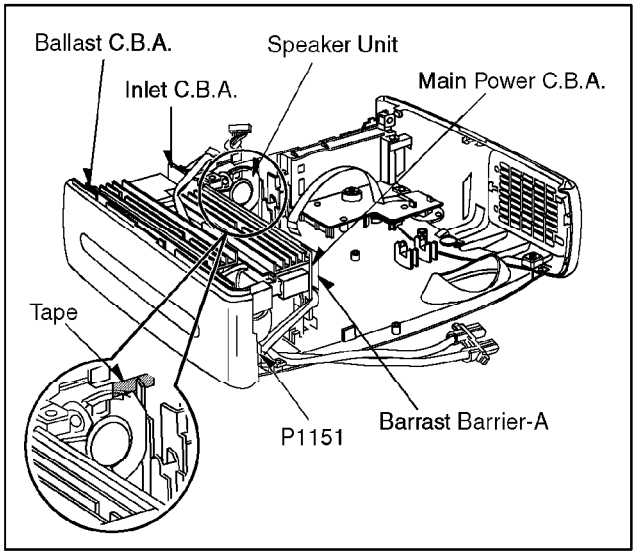


Fig. 4-2-14

Assembly Note:

After the installation of the speaker, put on the tape in the original position.

4.2.11. Removal of the Main Power C.B.A. the Ballast C.B.A., the Inlet C.B.A. and the Ballast Barrier-A

1. Carefully pull out the Main Power C.B.A., the Ballast C.B.A. and the Inlet C.B.A. along with the Ballast Barrier-A as shown in Fig. 4-2-14.
2. Disconnect 3 connectors P1151, P1201, P1302 and P1303 as shown in Fig. 4-2-15.

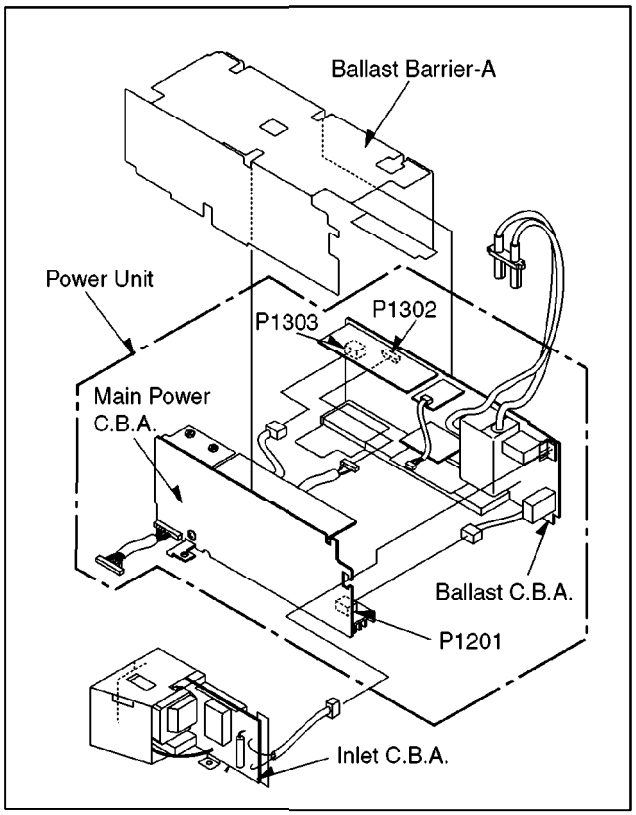


Fig. 4-2-15

Assembly Note:

Make sure that the Main Power C.B.A., the Ballast C.B.A. the Inlet C.B.A. and the Ballast Barrier-A are in the original position as shown in Fig. 4-2-16.

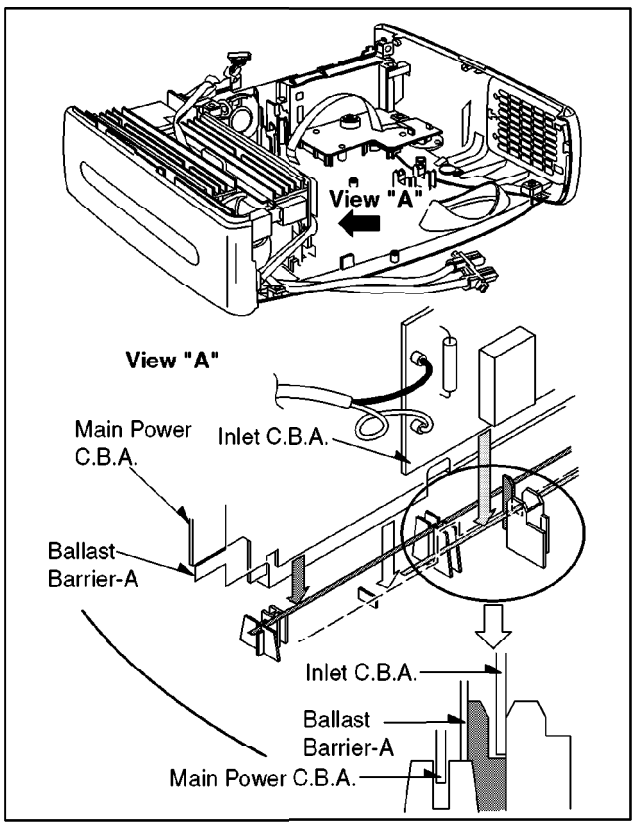


Fig. 4-2-16

4.2.12. Removal of the Operation C.B.A.

1. Remove 2 screws (J) as shown in Fig. 4-2-17.
2. By releasing 2 tabs, remove the Eject Knob.
3. Remove the Remote Control Holder Unit.

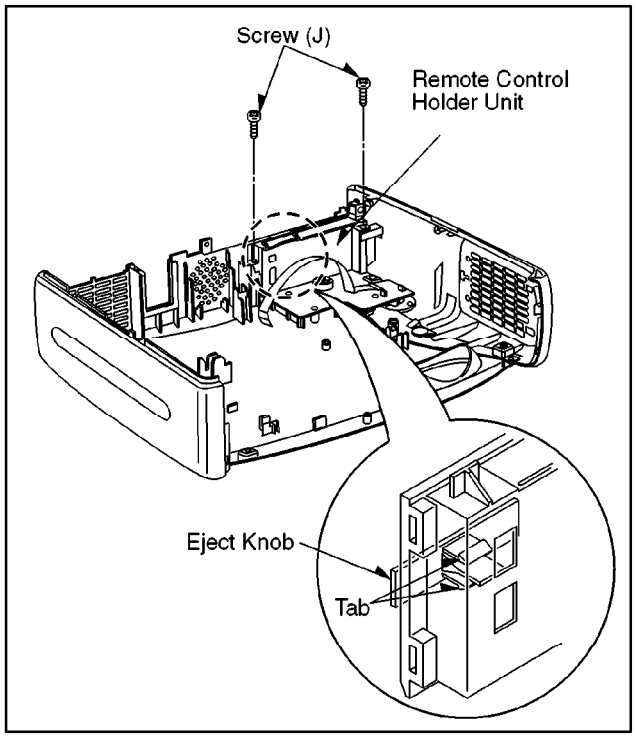


Fig. 4-2-17

4. Remove 4 screw (K) and the Support Plate as shown in Fig. 4-2-18.
5. Carefully pull out the Operation C.B.A.

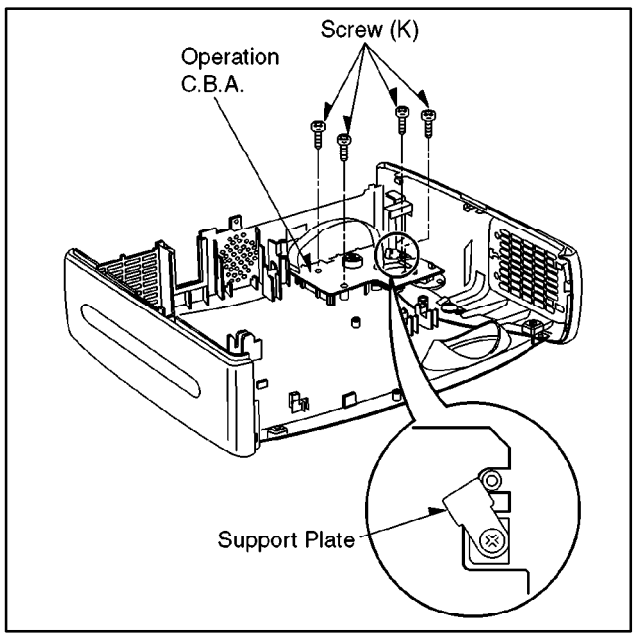


Fig. 4-2-18

Assembly Note:

When installing the Eject Knob, be careful of the direction of the insertion as shown in Fig. 4-2-19.

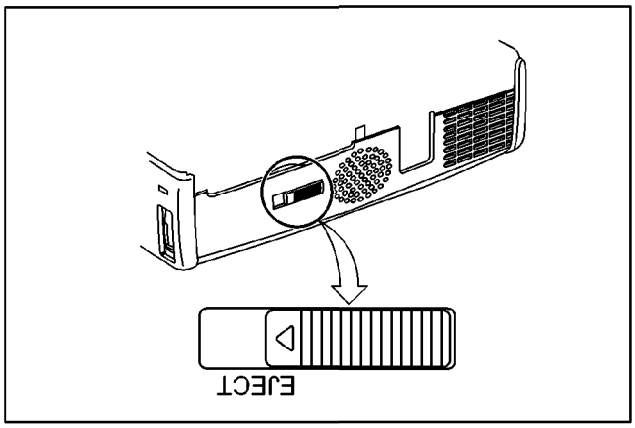


Fig. 4-2-19

4.3. DISASSEBLY FLOWCHART OF OPTICAL UNIT

This flowchart indicates the disassembly steps of the main parts of Optical Unit. When reassembling, perform the step(s) in the reverse order.

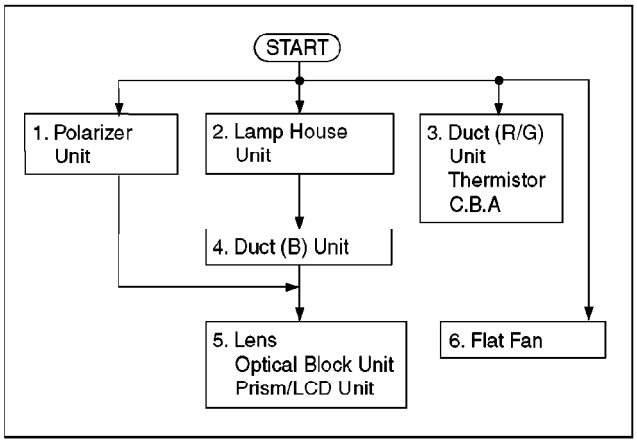

START
1. Polarizer Unit
2. Lamp House Unit
3. Duct (R/G) Unit Thermistor C.B.A
4. Duct (B) Unit
5. Lens Optical Block Unit Prism/LCD Unit
6. Flat Fan

Fig. 4-3-1

4.4. DISASSEMBLY METHOD OF OPTICAL UNIT

4.4.1. Removal of the Polarizer Units

1. Remove 3 screws (A) to remove the Polarizer Red Unit, the Polarizer Green unit and the Polarizer Blue Unit as shown in Fig. 4-4-1.

Note:

1. Take extreme care not to damage the Polarizer Units, when servicing.
2. Make sure that no dust gets on the Polarizer Units. Clean the Polarizer Units with cleaning paper moistened with lens cleaner if necessary.

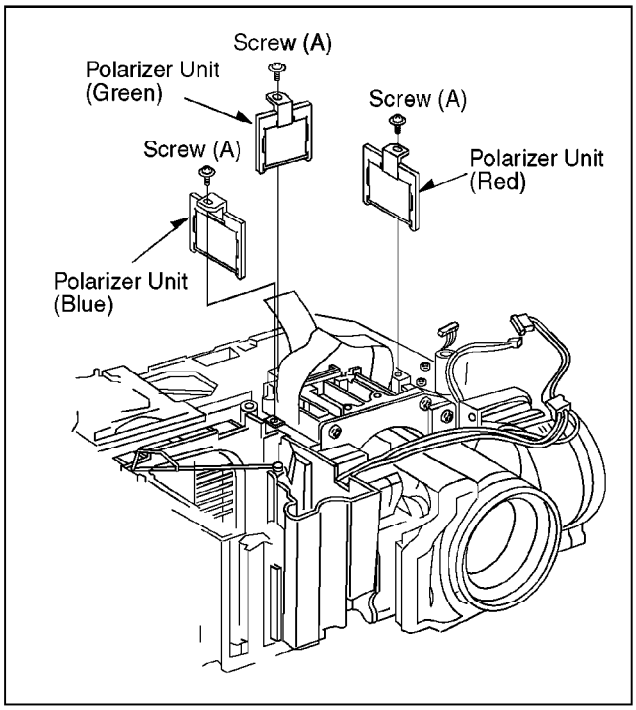


Fig. 4-4-1

Assembly Note:

1. After replacing the Polarizer Unit, adjustment is necessary (Refer to 5.1. Initial Guide Line).
2. Make sure of the Mark color to distinguish the Polarizer Unit (Red, Green, Blue) as shown in Fig. 4-4-2.

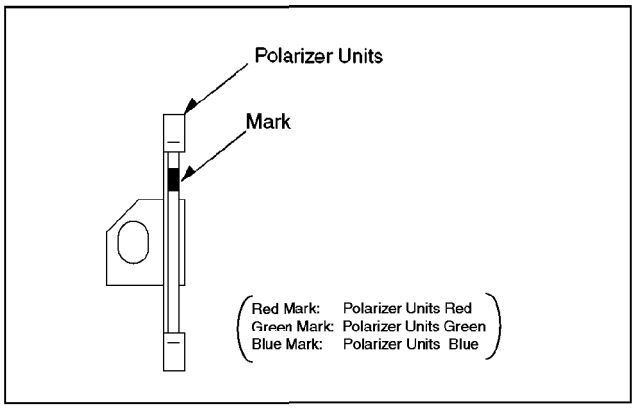


Fig. 4-4-2

4.4.2. Removal of the Lamp House Unit

1. Remove a screw (B) as shown in Fig. 4-4-3.
2. Remove the Lamp Duct.

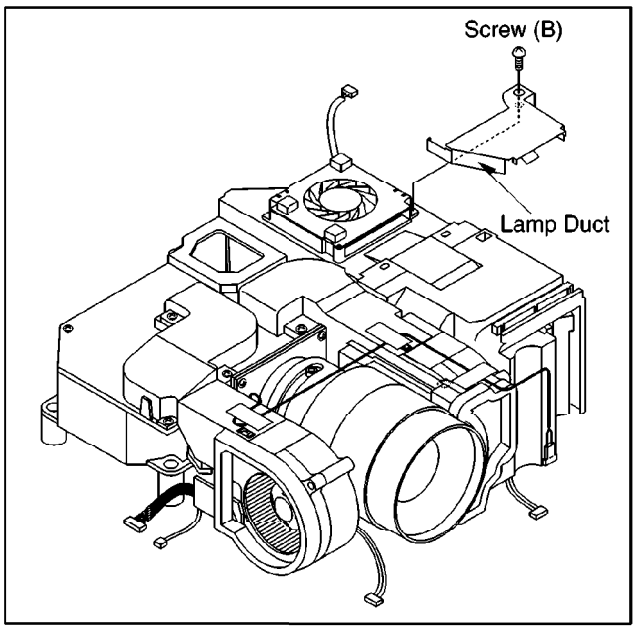


Fig. 4-4-3

3. Remove 2 screws (C) as shown in Fig. 4-4-4.
4. Remove the Fuse Holder.
5. Lift the Lamp House Unit up to release 2 projections.

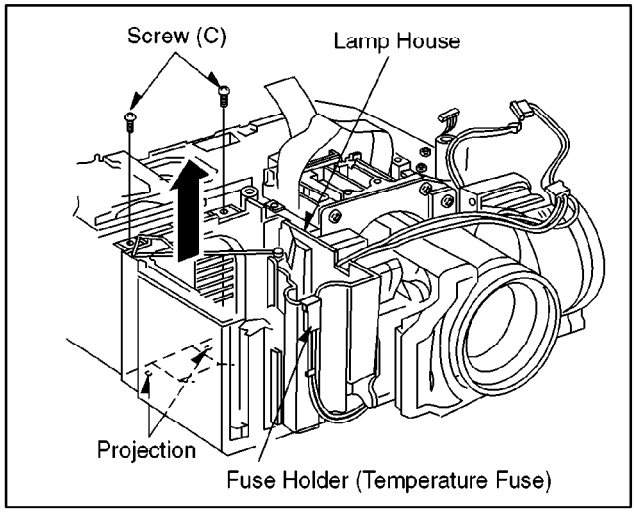


Fig. 4-4-4

Assembly Note:

After Installing the Lamp House Unit, install the Temperature Fuse and Fuse Holder in the original position as shown in Fig. 4-4-4.

4.4.3. Removal of the Duct Blue Unit

1. Remove 2 screws (D) as shown in Fig. 4-4-5.
2. Detach 2 tapes which is fixing the cable of the Temperature Fuse.
3. Remove the Duct Blue Unit carefully.

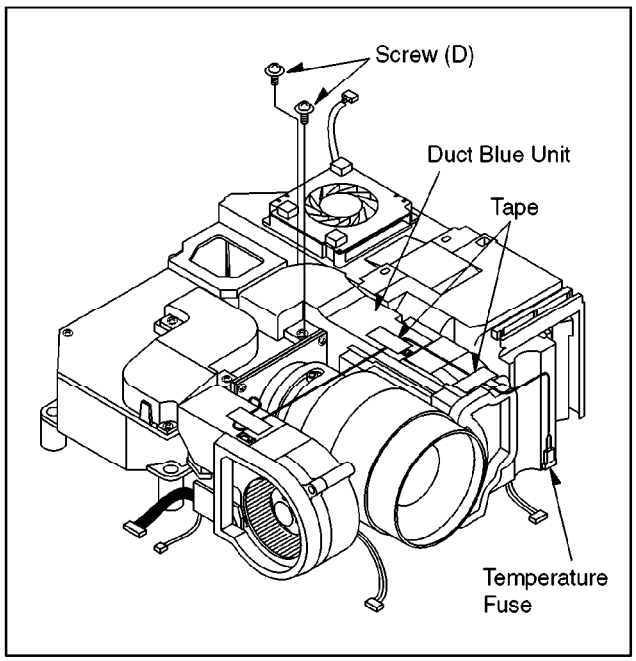


Fig. 4-4-5

4.4.4. Removal of the Duct Red/Green Unit and Thermistor C.B.A.

1. Remove 3 screws (E) as shown in Fig. 4-4-6.
2. Detach a tape which is fixing the cable of the Temperature Fuse.
3. Remove the Duct Red/Green Unit carefully.
4. Remove a screw (F) and the Thermistor C.B.A..

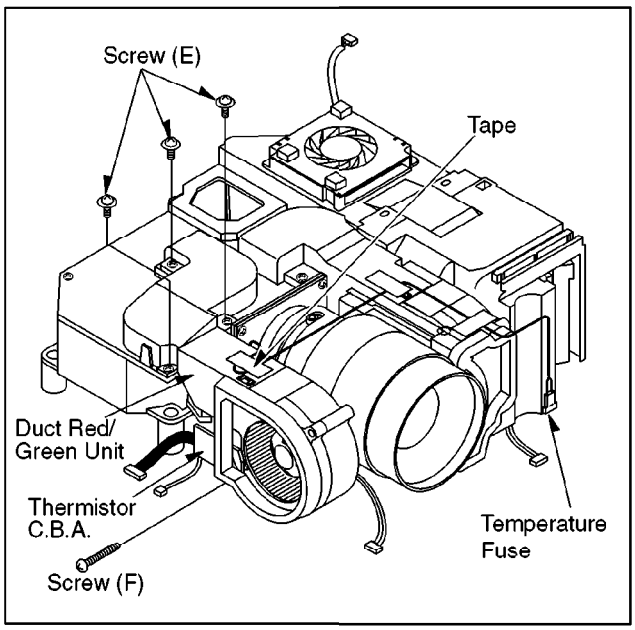


Fig. 4-4-6

Assembly Note:

After Installing the Duct Red/Green Unit, fix the cable of the Temperature Fuse in the original position as shown in Fig. 4-4-6.

4.4.5. Removal of the Lens, Optical Block Unit and Prism/LCD Unit

1. Remove 4 screws (G) as shown in Fig. 4-4-7.
2. Remove the Prism/LCD Unit with the Lens carefully.
3. Remove 4 screws (H) and separate the Lens from the Prism/LCD Unit.

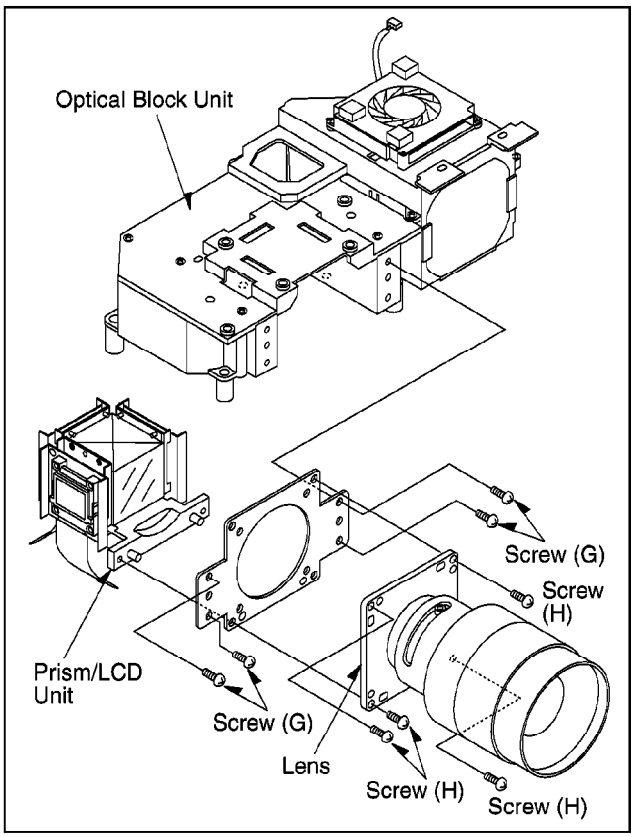


Fig. 4-4-7

4.4.6. Removal of the Polarizer Plates

1. Break the tabs which fix the Polarizer Plate Red, Polarizer plate Blue and Polarizer Plate Green as shown in Fig. 4-4-8.
2. Take out the Polarizer Plates by pushing from the opposite side of the broken tabs.

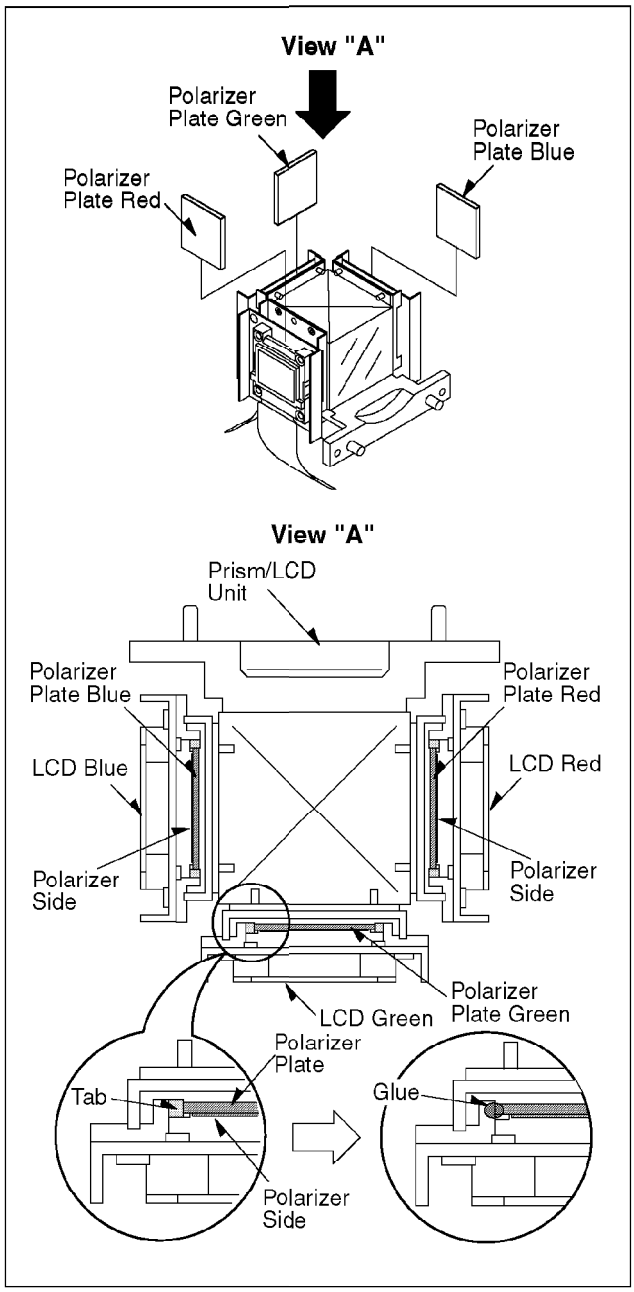


Fig. 4-4-8

Assembly note:

1. With paying attention to the direction of the Polarizer, insert and fix it with glue.
2. Be careful not to stick glue to the surface of the Polarizer.
3. After the hardening of glue is surely confirmed, install the Prism/LCD Unit.
4. If the picture becomes bluish or reddish or greenish due to the replacement of the Polarizer Plate , follow the procedure of " 5.4.10. POLARIZER ADJUSTMENT ".

4.4.7. Removal of the Flat Fan

1. Remove a screw (I) as shown in Fig. 4-4-9.

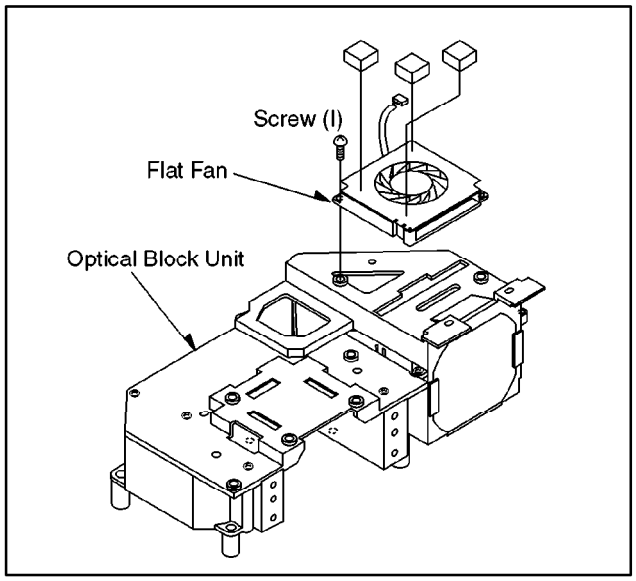


Fig. 4-4-9

5 ADJUSTMENT PROCEDURES

5.1. INITIAL GUIDE LINE

The tables below show adjustments which will be necessary according to the unit parts and optical parts to be replaced.

Make sure to perform these adjustments shown below as necessary.

If you replace:	Adjustments
MAIN C.B.A.	(5-4-1), 5-4-2, 5-4-3, 5-4-4, 5-4-5, 5-4-6, 5-4-7, 5-4-8
OPTICAL BLOCK UNIT	5-4-9
POLARIZER UNIT	5-4-10

List of necessary adjustments	
5-4-1	LCD VOLTEGE ADJUSTMENT
5-4-2	RGB INPUT LEVEL ADJUSTMENT
5-4-3	VIDEO INPUT LEVEL ADJUSTMENT
5-4-4	COMPONENT VIDEO COLOR ADJUSTMENT
5-4-5	LCD COMMON ADJUSTMENT
5-4-6	WHITE LEVEL ADJUSTMENT
5-4-7	BLACK LEVEL ADJUSTMENT
5-4-8	WHITE BALANCE ADJUSTMENT
5-4-9	FULL MIRROR ADJUSTMENT
5-4-10	POLARIZER ADJUSTMENT

Notes:

1. ( ) : Items which need the confirmation when replaced.
2. When any adjustments 5.4.1. through 5.4.4. are necessary, please refer to "Preparation for Adjustments 5.4.1. through 5.4.4.".
3. When any adjustments 5.4.5. through 5.4.8., 5.4.11. and 5.4.12. are necessary, please refer to "Preparation for Adjustments 5.4.5. through 5.4.8., 5.4.11. and 5.4.12.".

5.1.1. The "FACTORY ADJUST" mode

All Electrical Adjustments are performed on the "FACTORY ADJUST" mode which is used remote control unit instead of variable resistor to control the adjustment value.

1. Connect a jumper wire between TP2017 and TP2018 on Main C.B.A. for over 5 seconds to enter the "FACTORY ADJUST" mode.
2. Press the **POWER** button once.
3. While "Please press POWER button again to power off." is displayed, press the **MENU** button.
4. Press ▲ or ▼ button on remote control to select and press the **ENTER** button to set the item to be adjusted.

Note:
Do not adjust all items in "DIGITAL ADJUST", and VIDEO BRIGHT in "VIDEO/RGB ADJUST, and GAMMA R, G, B in "LCD/FAN ADJUST".

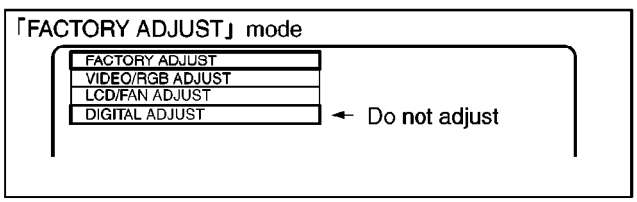


Fig. 5-1-1

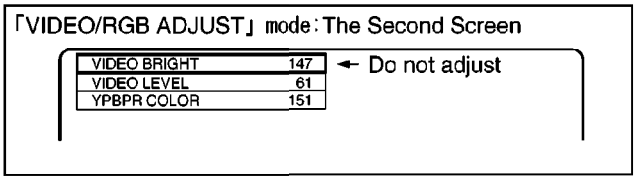


Fig. 5-1-2

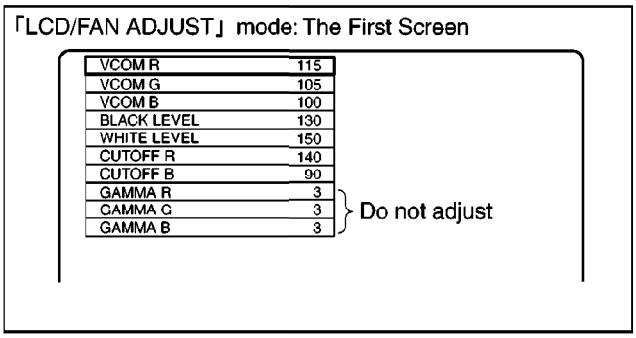


Fig. 5-1-3

5.2. TEST EQUIPMENT

To do all of these adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range : 0.001~50 V/Div.
   Frequency Range : DC~50 MHz
   Probes : 10:1, 1:1
2. NTSC Video Pattern Generator
3. Plastic Tip Driver and Non-Metal Driver
4. (+) Screwdriver and (-) Screwdriver
5. Hexagon Wrench (2.5 mm)
6. Standard Screen
7. DVM (Digital Volt Meter)
8. Programmable Video Signal Generator
9. Test pattern signal (not supplied)
10. Luminance Color Meter
11. Jumper wire

5.3. HOW TO READ THE ADJUSTMENT PROCEDURES

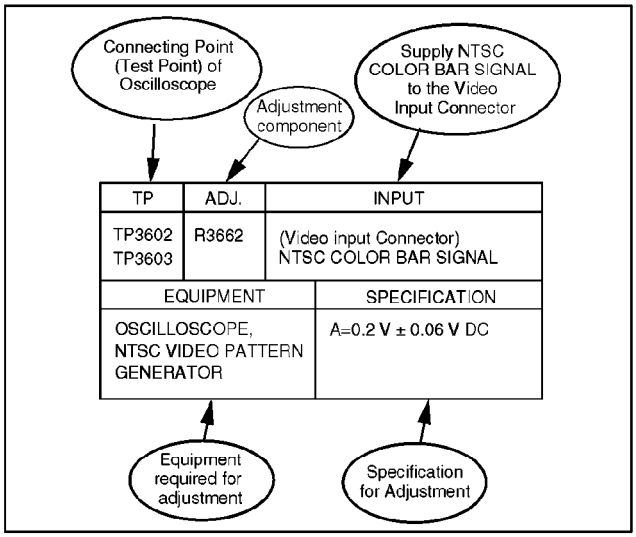


Fig. 5-3-1

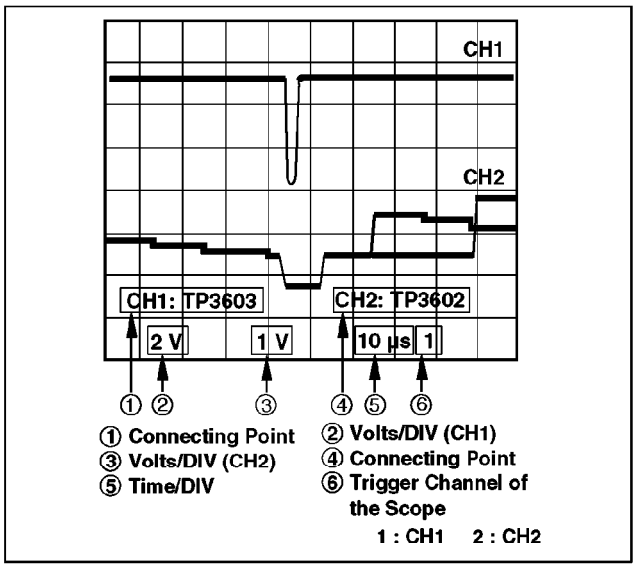


Fig. 5-3-2

5.4. ADJUSTMENT PROCEDURES

Preparation for Adjustments 5.4.1. through 5.4.4.

1. Connect a jumper wire between TP2017 and TP2018 on Main C.B.A. for over 5 seconds to set to the "FACTORY ADJUST" mode.
2. Press the **POWER** button once.
3. While "Please press POWER button again to power off." is displayed, press the **MENU** button.
4. Press ▲ or ▼ button on remote control to select "VIDEO/RGB ADJUST" mode, and press **ENTER** buttonto set to "VIDEO/RGB ADJUST" mode.

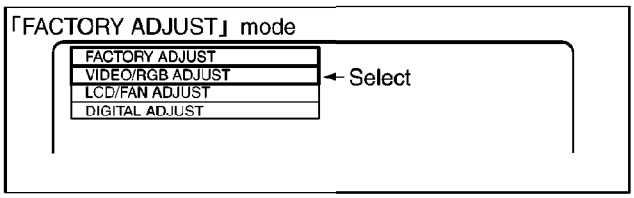


Fig. 5-4-1

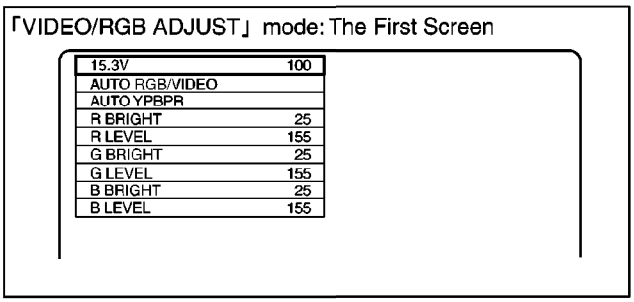


Fig. 5-4-2

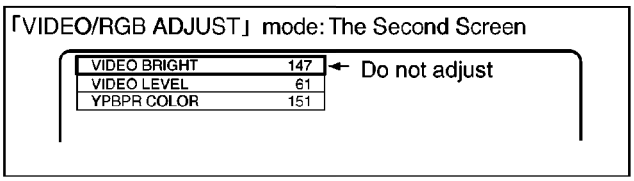


Fig. 5-4-3

5. After completing adjustments 5.4.1. through 5.4.4., press the "**MENU** " button to release from "VIDEO/RGB ADJUST" mode. (Adjustment data is memorized in EEPROM IC (IC2006) by pressing "**MENU** " button.)Otherwise, adjustment data 5.4.1. through 5.4.4. will be cancelled.

Preparation for Adjustments 5.4.5. through 5.4.8., 5.4.11. and 5.4.12.

1. Connect a jumper wire between TP2017 and TP2018 on Main C.B.A. for over 5 seconds to set to the "FACTORY ADJUST" mode.
2. Press the **POWER** button once.
3. While "Please press POWER button again to power off." is displayed, press the **MENU** button.
4. Press ▲ or ▼ button on remote control to select "LCD/FAN ADJUST" mode, and press **ENTER** buttonto set to "LCD/FAN ADJUST" mode.

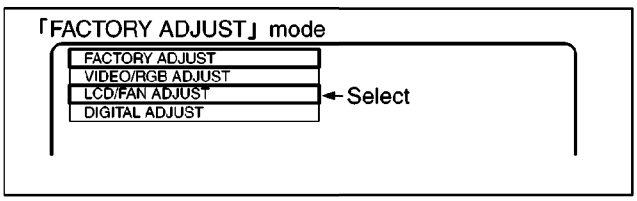


Fig. 5-4-4

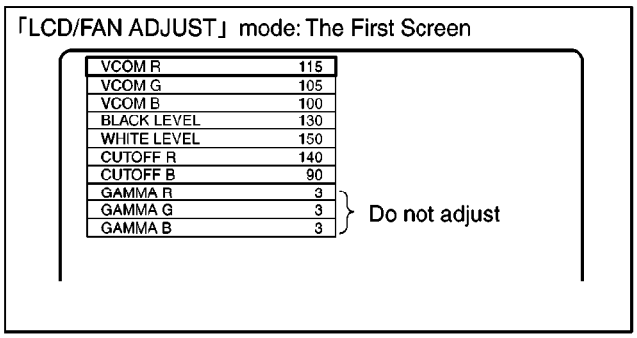


Fig. 5-4-5

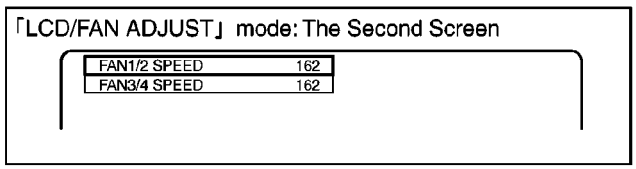


Fig. 5-4-6

5. After completing adjustments 5.4.5. through 5.4.8., 5.4.11. and 5.4.12., press the "**MENU** " button to release from "LCD/FAN ADJUST" mode. (Adjustment data is memorized in EEPROM IC (IC2006)by pressing "**MENU** " button.) Otherwise, adjustment data 5.4.5. through 5.4.8., 5.4.11. and 5.4.12. will be cancelled.

5.4.1. LCD VOLTAGE ADJUSTMENT

Purpose:

To set the standard voltage for LCD panel.

Symptom of Misadjustment:

LCD panel may be damaged.

TP	ADJ.	INPUT
TP1904 TP1907 (GND)		
EQUIPMENT		SPECIFICATION
DVM (DIGITAL VOLT METER)		15.3 V ± 0.05 V DC

Note:

TP1904, TP1907: MAIN C.B.A.

1. Connect the DVM (Digital Volt Meter) to TP1904.
2. Press ▲ or ▼ button on the remote control to select "15.3V".
3. Press ◀ or ▶ button so that the voltage shown in the display of DVM is 15.3 V ± 0.05 V DC.

5.4.2. RGB INPUT LEVEL ADJUSTMENT

Purpose:

To set the optimum signal level.

Symptom of Misadjustment:

The picture will be too light or too dark.

TP	ADJ.	INPUT
TP3501 TP3502 TP3503		(RGB Input Connector) GRAY SCALE PATTERN SIGNAL (3 SCALE)
EQUIPMENT		SPECIFICATION
OSCILLOSCOPE TEST PATTERN SIGNAL		Refer to Description below

Note:

TP3501, TP3502, TP3503: Main C.B.A.

1. Supply Gray Scale Pattern Signal (3 scales).
2. Connect the oscilloscope to TP3501.
3. Press ▲ or ▼ button on remote control to select "R BRIGHT".
4. Press ◀ or ▶ button so that Black level becomes the same as OSD Black level.
5. Select "R LEVEL", and press ◀ or ▶ button so that White level becomes the same as OSD White level.
6. Connect the oscilloscope to TP3502.
7. Press ▲ or ▼ button on remote control to select "G BRIGHT".
8. Press ◀ or ▶ button so that Black level becomes the same as OSD Black level.
9. Select "G LEVEL", and press ◀ or ▶ button so that White level becomes the same as OSD White level.
10. Connect the oscilloscope to TP3503.
11. Press ▲ or ▼ button on remote control to select "B BRIGHT".
12. Press ◀ or ▶ button so that Black level becomes the same as OSD Black level.
13. Select "B LEVEL", and press ◀ or ▶ button so that White level becomes the same as OSD White level.

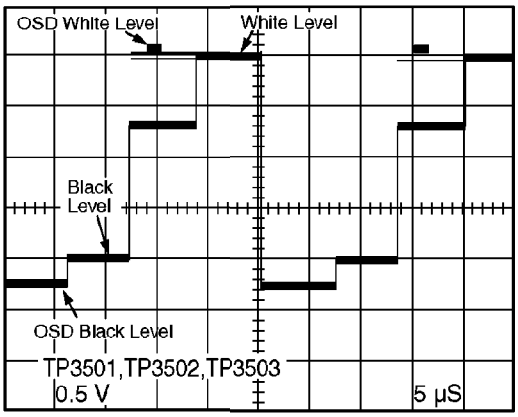


Fig. 5-4-7

5.4.3. VIDEO INPUT ADJUSTMENT

Purpose:

To set the optimum signal level.

Symptom of Misadjustment:

The picture will be too light or too dark.

TP	ADJ.	INPUT
TP3502		(VIDEO Input Connector) GRAY SCALE PATTERN SIGNAL (3 SCALE)
EQUIPMENT		SPECIFICATION
OSCILLOSCOPE NTSC VIDEO PATTERN GENERATOR		Refer to Description below

Note:

TP3502: Main C.B.A.

1. Supply Gray Scale Pattern Signal (3 scales).
2. Connect the oscilloscope to TP3502.
3. Press ▲ or ▼ or **MENU** button on remote control to select "VIDEO LEVEL".
4. Press ◀ or ▶ button so that the white level becomes the same as OSD white level.

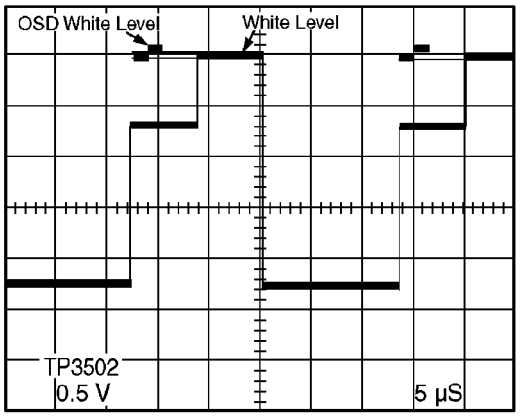


Fig. 5-4-8

5.4.4. COMPONENT VIDEO COLOR ADJUSTMENT

Purpose:

To set the optimum signal level.

Symptom of Misadjustment:

The picture will be too light or too dark.

TP	ADJ.	INPUT
TP3503		(RGB Input Connector) COMPONENT VIDEO 480P BLUE 100 % RASTER SIGNAL (SET UP: YPBPR)
EQUIPMENT		SPECIFICATION
OSCILLOSCOPE PROGRAMMABLE VIDEO SIGNAL GENERATOR		Refer to Description below

Note:

TP3503: Main C.B.A.

1. Supply Component Video 480P Blue 100 % Raster Signal. (Refer to "System Configuration Example" of "2 OPERATION GUIDE")
2. Connect the oscilloscope to TP3503.
3. Press ▲ or ▼ button on remote control to select "YPBPR COLOR".
4. Press ◀ or ▶ button so that the Blue level becomes the same as OSD White level.

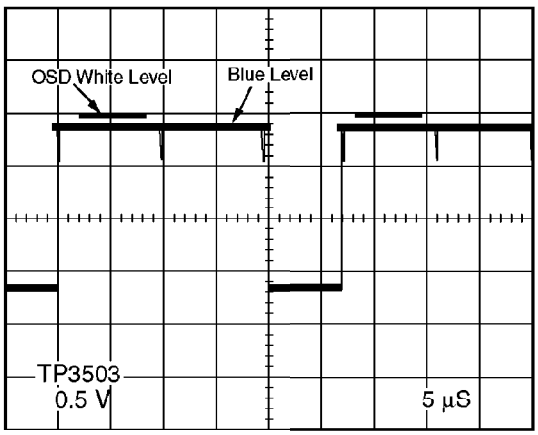


Fig. 5-4-9

Note:

After completing adjustments, press the "**MENU** " button to release from "VIDEO/RGB ADJUST" mode. (Adjustment data is memorized in EEPROM IC (IC2006) by pressing "**MENU** " button.)Otherwise, adjustment data 5.4.1. through 5.4.4. will be cancelled.

5.4.5. LCD COMMON ADJUSTMENT

Purpose:

To set the optimum LCD common voltage.

Symptom of Misadjustment:

The picture will be bluish or reddish.

TP	ADJ.	INPUT
		(RGB Input Connector) 70 % Red Horizontal Signal 70 % Green Horizontal Signal 70 % Blue Horizontal Signal
EQUIPMENT		SPECIFICATION
TEST PATTERN SIGNAL		Refer to Description below

Note:

This adjustment should be done in a darkroom.

1. Supply 70 % Red Horizontal Signal and project on the screen.
2. Press ▲ or ▼ button on remote control to select "VCOM R".
3. Press ◀ or ▶ button so that the flicker on the whole screen becomes minimal.
4. Supply 70 % Green Horizontal Signal and project on the screen.
5. Press ▲ or ▼ button on remote control to select "VCOM G".
6. Press ◀ or ▶ button so that the flicker on the whole screen becomes minimal.
7. Supply 70 % Blue Horizontal Signal and project on the screen.
8. Press ▲ or ▼ button remote control to select "VCOM B".
9. Press ◀ or ▶ button so that the flicker on the whole screen becomes minimal.

Note:

When the flicker is hard to see in the screen in step 1, 4, 7, press ▲ or ▼ button on remote control to select "BLACK LEVEL",and press ◀ or ▶ button so that it appears. **However, be sure to return "BLACK LEVEL" to previous valueafter LCD COMMON adjustment** .

5.4.6. WHITE LEVEL ADJUSTMENT

Purpose:

To set the optimum signal level.

Symptom of Misadjustment:

The picture will be too light or too dark.

TP	ADJ.	INPUT
TP3505		(RGB Input Connector) GRAY SCALE PATTERN SIGNAL (3 SCALE)
EQUIPMENT		SPECIFICATION
OSCILLOSCOPE TEST PATTERN SIGNAL		A=3.7 V ± 0.05 V [p-p]

Note:

TP3505: Main C.B.A.

1. Supply Gray Scale Pattern Signal (3 scales).
2. Connect the oscilloscope to TP3505.
3. Press ▲ or ▼ button on remote control to select "WHITE LEVEL".
4. Press ◀ or ▶ button so that level A becomes 3.7 V ± 0.05 V [p-p].

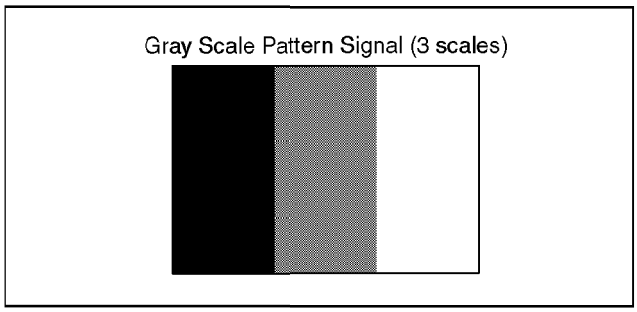


Fig. 5-4-10

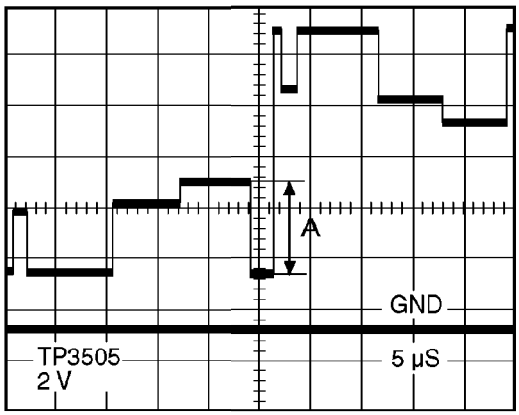


Fig. 5-4-11

5.4.7. BLACK LEVEL ADJUSTMENT

Purpose:

To set the optimum signal level.

Symptom of Misadjustment:

The picture will be too light or too dark.

TP	ADJ.	INPUT
		(RGB Input Connector) GREEN LEVEL ADJUSTMENT SIGNAL
EQUIPMENT		SPECIFICATION
TEST PATTERN SIGNAL		Refer to Description below

Note:

This adjustment should be done in a darkroom.

1. Supply Green Level Adjustment Signal and project on the screen.
2. Press ▲ or ▼ button on remote control to select "BLACK LEVEL".
3. Press ◀ or ▶ button so that Portion (B) are invisible and Portion (A) are visible on the screen.

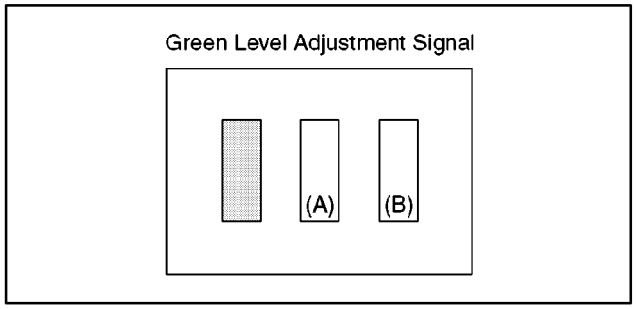


Fig. 5-4-12

5.4.8. WHITE BALANCE ADJUSTMENT

Purpose:

To set the standard white level for each color temperature.

Symptom of Misadjustment:

White will become bluish or reddish.

This adjustment should be done in a darkroom.

5.4.8.1. METHOD 1

TP	ADJ.	INPUT
		(VIDEO Input Connector) GRAY SCALE PATTERN SIGNAL (10 scales)
EQUIPMENT		SPECIFICATION
NTSC VIDEO PATTERN GENERATOR		Refer to Description below

Note:

This adjustment should be done in a darkroom.

1. Supply Gray Scale Pattern Signal (10 scales) and Project on the screen.
2. Press ▲ or ▼ button on remote control to select "CUTOFF R" or "CUTOFF B".
3. Press ◀ or ▶ button to adjust "CUTOFF R" or "CUTOFF B" so that the area around 4rdand 6th scale (A) becomes pure gray with no red or blue tint.

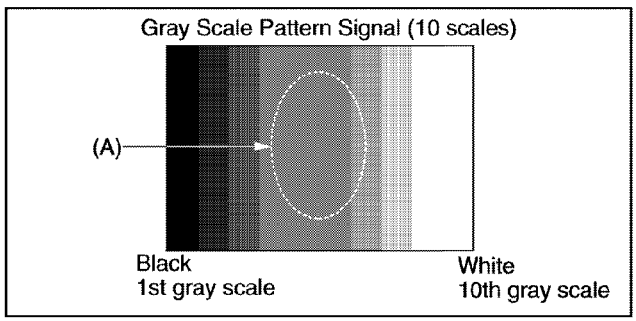


Fig. 5-4-13

5.4.8.2. METHOD 2

TP	ADJ.	INPUT
		(RGB Input Connector) 50 % WHITE (GRAY) ADJUSTMENT SIGNAL
EQUIPMENT		SPECIFICATION
TEST PATTERN SIGNAL LUMINANCE COLOR METER		Refer to Description below

1. Supply 50 % White Pattern Signal (0.35 V [p-p]) and project on the screen.
2. Press ▲ or ▼ button on remote control to select "CUTOFF R" or "CUTOFF B".
3. Press ◀ or ▶ button to adjust "CUTOFF R" or "CUTOFF B" so that color temperature (K)and its deviation (uv) at the center of screen are 9500 K ± 1000 K and 0.015 uv + 0.003 uv - 0.005 uv respectively by Luminance Color Meter.

Note:

After completing adjustments, press the "**MENU** " button to release from "LCD/FAN ADJUST" mode. (Adjustment data is memorized in EEPROM IC (IC2006) by pressing "**MENU** " button.)Otherwise, adjustment data 5.4.5. through 5.4.8. will be cancelled.

5.4.9. FULL MIRROR ADJUSTMENT

Purpose:

To set the Full Mirror in the proper position.

Symptom of Misadjustment:

The non-uniformity color will appear.

TP	ADJ.	INPUT
	FULL MIRROR FULL MIRROR RED-2 FULL MIRROR BLUE	(RGB Input Connector) 100 % GREEN SIGNAL 100 % YELLOW SIGNAL 100 % WHITE SIGNAL
EQUIPMENT		SPECIFICATION
TEST PATTERN SIGNAL		Refer to Description below

Adjustment:

Adjust the right and left sides of the screen by adjusting portion (a), portion (b) or portion (c) and adjust the top and bottom sides of the screen by adjusting back and forth direction.

1. FULL MIRROR ADJUSTMENT
   a. Supply 100 % Green Signal and project on the screen.
   b. Loosen 2 Screws (A) of the Full Mirror.
   c. Insert a (-) screwdriver into Portion (a) and move the Full Mirror in the direction shown by the arrows so that color uniformity is achieved over the whole screen. And then tighten 2 Screws (A).

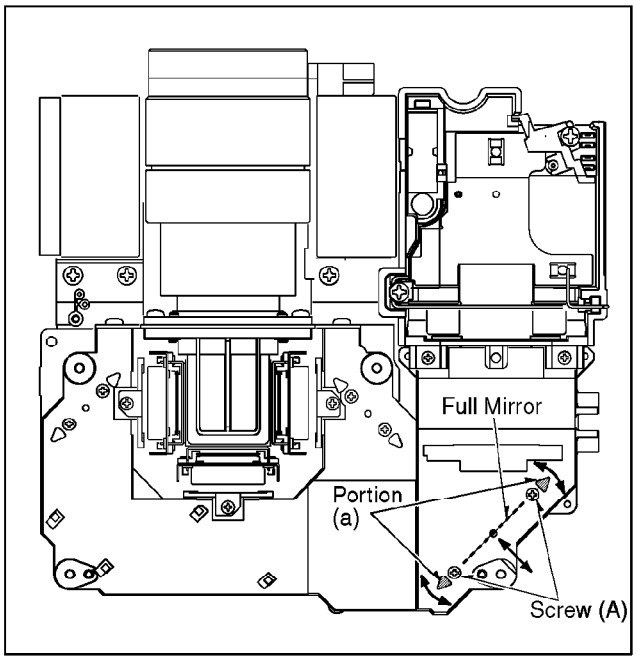


Fig. 5-4-14

2. FULL MIRROR RED-2 ADJUSTMENT

a. Supply 100 % Yellow Signal and project on the screen.

b. Loosen 2 Screws (B) of the Full Mirror Red-2.

c. Insert a (-) screwdriver into Portion (b) and move the Full Mirror Red-2 in the direction shown by the arrows so that color uniformity is achieved over the whole screen. And then tighten 2 screws (B).

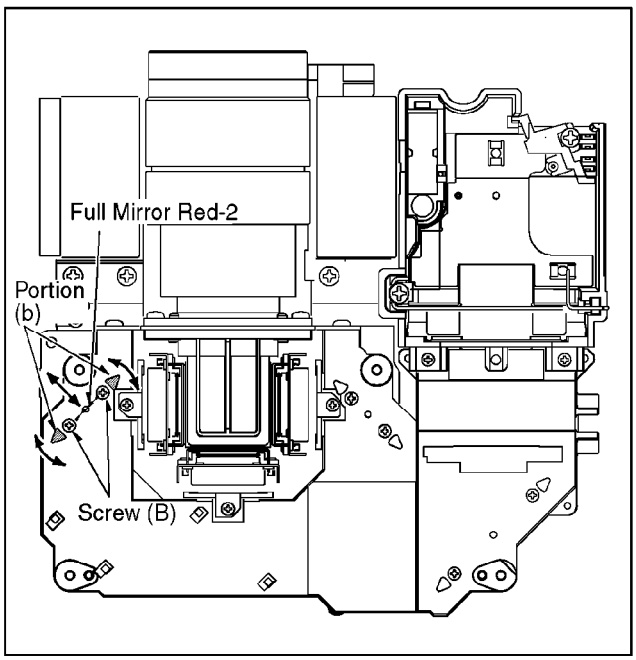


Fig. 5-4-15

3. FULL MIRROR BULE ADJUSTMENT

a. Supply 100 % White Signal and project on the screen.

b. Loosen 2 Screws (C) of the Full Mirror Blue.

c. Insert a (-) screwdriver into Portion (c) and move the Full Mirror Blue in the direction shown by the arrows so that color uniformity is achieved over the whole screen. And then tighten 2 screws (C).

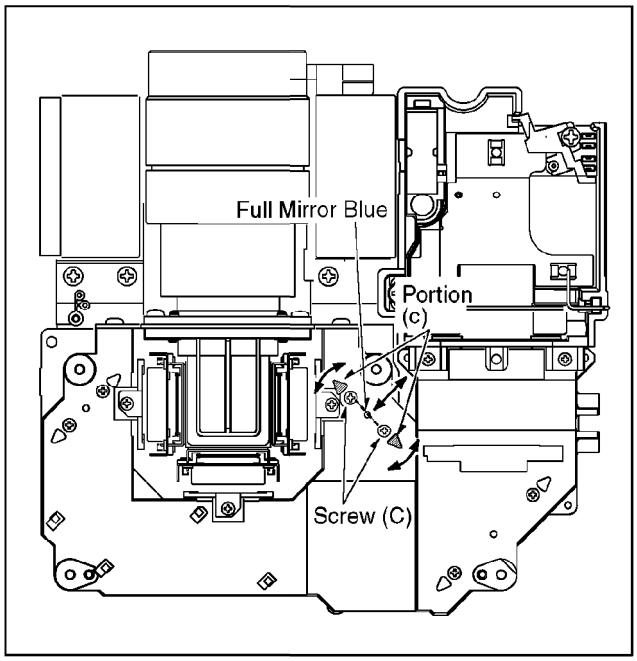


Fig. 5-4-16

4. If the Full Mirror Blue adjustment can not be done, repeat step 1 through 2.

Note:
Do not use excessive force when adjusting the Mirror. Otherwise, the Mirror may be damaged.

5.4.10. POLARIZER ADJUSTMENT

Purpose:

To set the polarizer in the proper position.

Symptom of Misadjustment:

The picture will become bluish or reddish or greenish.

TP	ADJ.	INPUT
	POLARIZER RED POLARIZER GREEN POLARIZER BLUE	(RGB Input Connector) BLACK SIGNAL (0 %)
EQUIPMENT		SPECIFICATION
TEST PATTERN SIGNAL		Refer to Description below

· POLARIZER RED ADJUSTMENT

1. Supply Black Signal (0 %) and project on the screen.
2. Loosen a Screw (A) of Polarizer Red Unit.
3. Move the Polarizer Red Unit to the right and left so that the whole screen becomes the blackest possible value, and then tighten a Screw (A).

· POLARIZER GREEN ADJUSTMENT

1. Supply Black Signal (0 %) and project on the screen.
2. Loosen a Screw (B) of Polarizer Green Unit.
3. Move the Polarizer Green Unit to the right and left so that the whole screen becomes the blackest possible

value, and then tighten a Screw (B).

· **POLARIZER BLUE ADJUSTMENT**

1. Supply Black Signal (0 %) and project on the screen.
2. Loosen a Screw (C) of Polarizer Blue Unit.
3. Move the Polarizer Blue Unit to the right and left so that the whole screen becomes the blackest possible value, and then tighten a Screw (C).

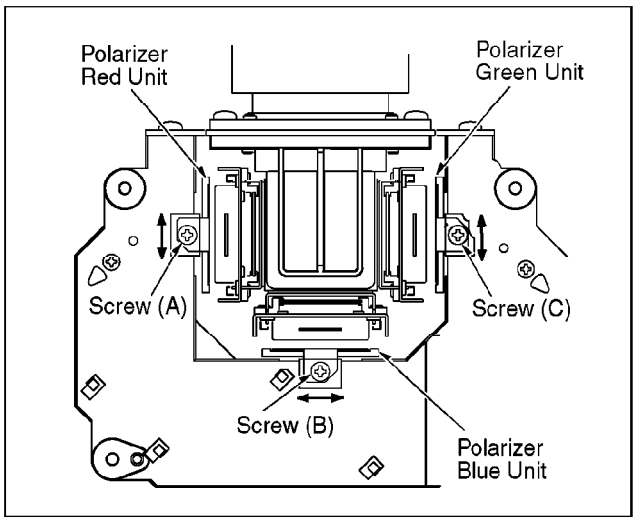


Fig. 5-4-17

5.4.11. DUCT FAN SPEED ADJUSTMENT

Purpose:

To set the optimum turn speed of the Duct Fan.

Symptom of Misadjustment:

Temperature of the LCD projector becomes too high or sound of the Duct Fan becomes loud.

TP	ADJ.	INPUT
TP1961 TP1907 (GND)		

EQUIPMENT	SPECIFICATION
DVM (DIGITAL VOLT METER)	8.0 V ± 0.05 V DC

Note:

TP1961, TP1907: MAIN C.B.A.

1. Connect the DVM (Digital Volt Meter) to TP1961.
2. Press ▲ or ▼ or **MENU** button on the remote control to select "FAN1/2 SPEED".
3. Press ◀ or ▶ button so that the voltage shown in the display of DVM is 8.0 V ± 0.05 V DC.

5.4.12. POER FAN AND LAMP FAN SPEED ADJUSTMENT

Purpose:

To set the optimum turn speed of the Power Fan and Lamp Fan.

Symptom of Misadjustment:

Temperature of the LCD projector becomes too high or sound of the Power Fan and Lamp Fan becomes loud.

TP	ADJ.	INPUT
TP1962 TP1907 (GND)		

EQUIPMENT	SPECIFICATION
DVM (DIGITAL VOLT METER)	8.0 V ± 0.05 V DC

Note:

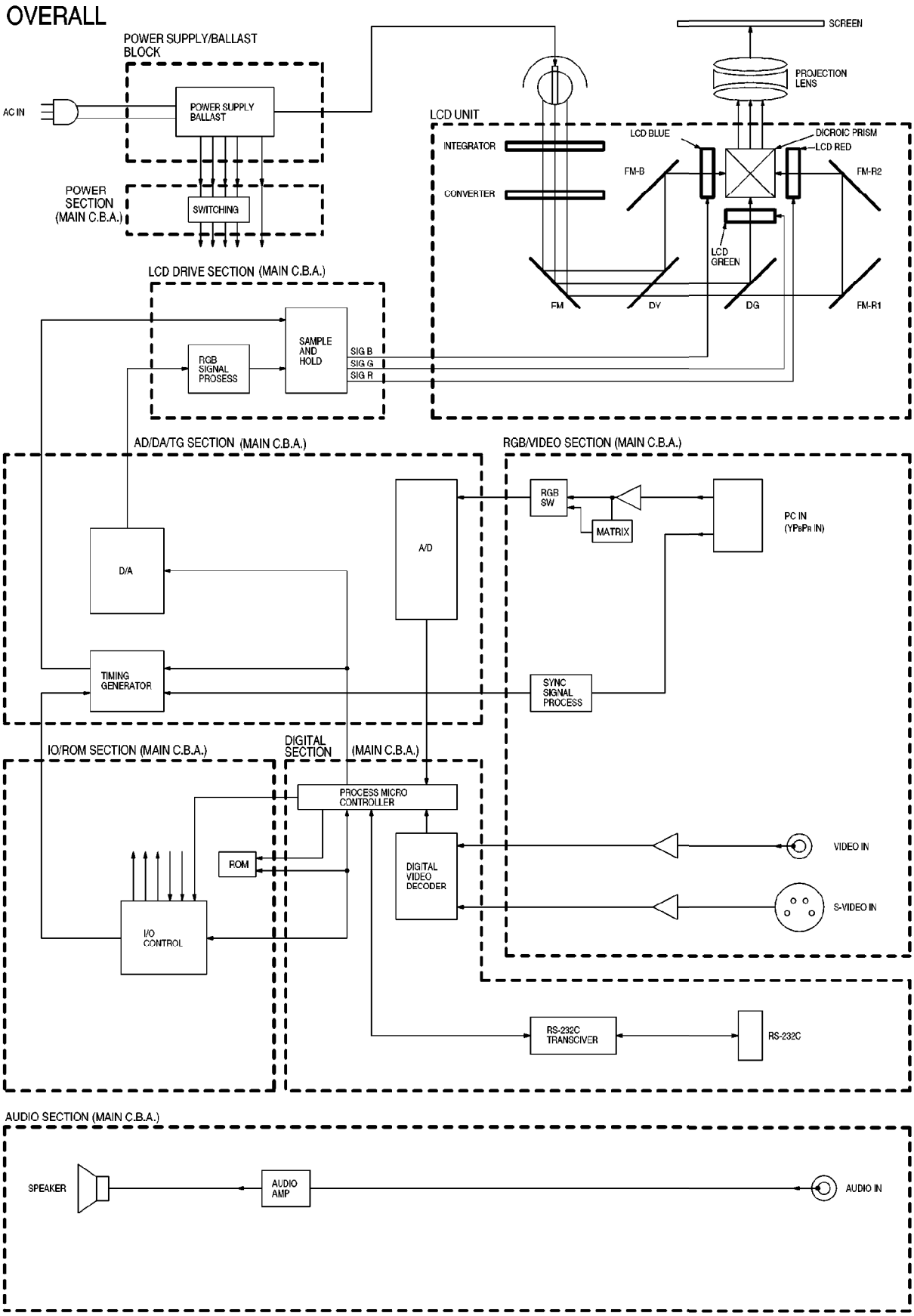
TP1962, TP1907: MAIN C.B.A.

1. Connect the DVM (Digital Volt Meter) to TP1962.
2. Press ▲ or ▼ button on the remote control to select "FAN3/4 SPEED".
3. Press ◀ or ▶ button so that the voltage shown in the display of DVM is 8.0 V ± 0.05 V DC.

Note:

After completing adjustments, press the "**MENU** " button to release from "LCD/FAN ADJUST" mode. (Adjustment data is memorized in EEPROM IC (IC2006) by pressing "**MENU** " button.)Otherwise, adjustment data 5.4.11. and 5.4.12. will be cancelled.

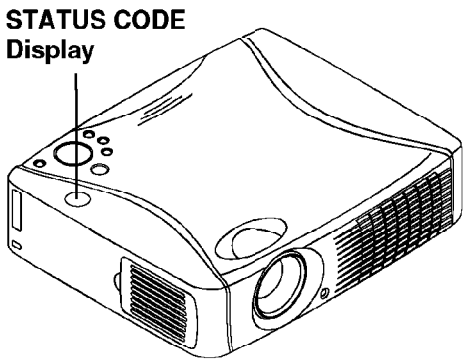
6 BLOCK DAIGRAM



7 TROUBLESHOOTING HINTS

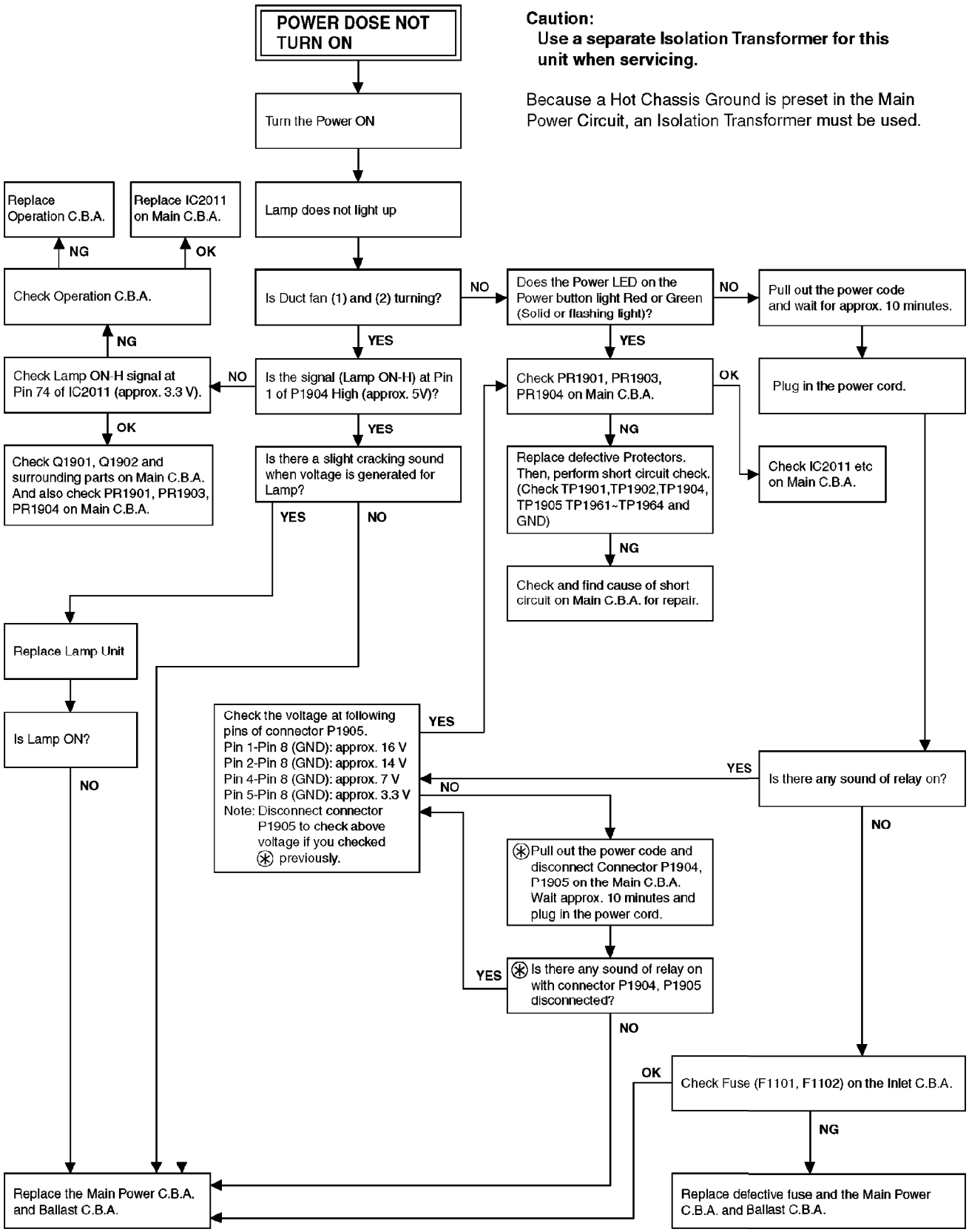
Status Code Display Indications

Following Status Code will be displayed in the STATUS CODE display.



STATUS CODE	Symptom	Problem	Possible Solution
F-L	Lamp Unit automatically turns off due to abnormally high internal temperature. (Stand-by condition)	• Cooling fan (Duct Fan (1), Duct Fan (2) Lamp Fan and/or Flat Fan) malfunction.	1) Confirm that all cables are connected to connectors (P1901, P1902, P1903, P1906, P1907) correctly. 2) Check following fan lock signal Lamp ON Check the voltage at following pins of IC1961, IC1962, IC1963. Pin 1-Pin 5 (GND): approx. 14 V NO → Check the power voltage line on Main C.B.A. YES Check the voltage at following pins of connectors P1901, P1902, P1903, P1907. Pin 3-Pin 2 (GND): above 7~11 V YES → Check Pin 3 of P1901. (Fan1 lock signal) → High → Replace Duct Fan (1). NO Check the voltage at following pins of IC1961, IC1962, IC1963. Pin 2-Pin 5 (GND): above 2.5 V YES → Check Pin 3 of P1902. (Fan2 lock signal) → High → Replace Duct Fan (2). Replace IC1961 or IC1962 or IC1963. NO → Check Pin 3 of P1903. (Fan4 lock signal) → High → Replace Lamp Fan. Check Pin 3 of P1907. (Fan5 lock signal) → High → Replace Flat Fan. Check IC1961, IC1962 IC1963, IC2011 and surrounding parts. Low
C-O		• Misinstalled Air Filter cover or Lamp cover. • Temperature Fuse malfunction.	• Properly install Filter cover or Lamp cover. • Replace Temperature Fuse.

STATUS CODE	Symptom	Problem	Possible Solution
A-n		• The surrounding temperature of the place of use may be too low.	• Relocate projector to a proper location. • Place projector so that surrounding temperature is between 0 °C (32 °F) and 40 °C (104 °F) and the humidity is between 10 % and 80 % (with no condensation).
A-0		• Clogged air filter. • Blocked air intake. • The surrounding temperature of the place of use may be too high.	• Clean the filter. • Relocate projector to a proper location. • Place projector so that surrounding temperature is between 0 °C (32 °F) and 40 °C (104 °F) and the humidity is between 10 % and 80 % (with no condensation).
L-n	Lamp does not light up.	• There is the possibility that Lamp is burned-out.	• Wait until the Lamp Unit is cooled off (approx. 5 minutes) and try to turn the power back on. • If this code appears, try above again and again. • If this code appears continuously more than 5 or 6 times, replace the Lamp Unit. • If this code appears again after replacement of the Lamp Unit, replace the Main Power C.B.A. and Ballast C.B.A.
P-2		• Lamp Voltage is not correct.	• Wait until the Lamp Unit has cooled off (approx. 5 minutes) and try to turn the power back on. • Replace the Lamp Unit.
P-3	Abnormally high internal temperature.	• Abnormal temperature rise.	• Wait until the Lamp Unit has cooled off (approx. 5 minutes) and try to turn the power back on. • Replace the Main Power C.B.A. and Ballast C.B.A.
P-4		• Other cause.	
L-1	Lamp operation time is over 1900 hours.	• It is nearly time to replace the Lamp Unit.	• Replace the Lamp unit.
L-0	Lamp operation time is over 2000 hours.	• The Lamp Unit must be replaced.	
C-d	Forced cooling fan operating to expedite lamp replacement.	———	———


POWER DOSE NOT TURN ON
Turn the Power ON
Lamp does not light up
Is Duct fan (1) and (2) turning?
NO
Does the Power LED on the Power button light Red or Green (Solid or flashing light)?
NO
Pull out the power code and wait for approx. 10 minutes.
YES
Plug in the power cord.
Replace Operation C.B.A.
Replace IC2011 on Main C.B.A.
NG
OK
Check Operation C.B.A.
NG
Check Lamp ON-H signal at Pin 74 of IC2011 (approx. 3.3 V).
NO
Is the signal (Lamp ON-H) at Pin 1 of P1904 High (approx. 5V)?
YES
OK
Check Q1901, Q1902 and surrounding parts on Main C.B.A. And also check PR1901, PR1903, PR1904 on Main C.B.A.
YES
Is there a slight cracking sound when voltage is generated for Lamp?
NO
Check PR1901, PR1903, PR1904 on Main C.B.A.
OK
NG
Check IC2011 etc on Main C.B.A.
Replace defective Protectors. Then, perform short circuit check. (Check TP1901,TP1902,TP1904, TP1905 TP1961~TP1964 and GND)
NG
Check and find cause of short circuit on Main C.B.A. for repair.
Replace Lamp Unit
Is Lamp ON?
NO
Check the voltage at following pins of connector P1905.
Pin 1-Pin 8 (GND): approx. 16 V
Pin 2-Pin 8 (GND): approx. 14 V
Pin 4-Pin 8 (GND): approx. 7 V
Pin 5-Pin 8 (GND): approx. 3.3 V
Note: Disconnect connector P1905 to check above voltage if you checked ⊛ previously.
YES
YES
Is there any sound of relay on?
NO
NO
⊛Pull out the power code and disconnect Connector P1904, P1905 on the Main C.B.A. Wait approx. 10 minutes and plug in the power cord.
YES
⊛ Is there any sound of relay on with connector P1904, P1905 disconnected?
NO
OK
Check Fuse (F1101, F1102) on the Inlet C.B.A.
NG
Replace the Main Power C.B.A. and Ballast C.B.A.
Replace defective fuse and the Main Power C.B.A. and Ballast C.B.A.

Caution:
Use a separate Isolation Transformer for this unit when servicing.

Because a Hot Chassis Ground is preset in the Main Power Circuit, an Isolation Transformer must be used.

NO PICTURE (VIDEO INPUT)

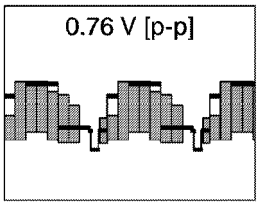
- Is Lamp ON? — NO → Lamp or Power circuit is defective. See troubleshooting of "Power deos not turn on".
- YES
- Are all voltages at P1905 connector of Main C.B.A. correct? — NO → Power circuit is defective. See troubleshooting of "Power does not turn on".
- YES
- Is there video signal at Pin 18 of IC2008? — NO → Check Q5006 and surrounding parts.
- YES
- Are there input signals at Pin 45, Pin 46, Pin 49, Pin 52~57, Pin 59~62, Pin 64~67, Pin 69~72 of IC2008? — NO → Check IC2008 and surrounding parts.
- YES
- A

NO PICTURE (YP_BP_R INPUT)

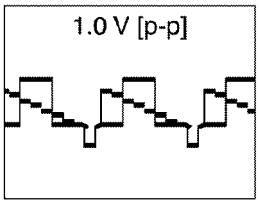
- Are there input signals at C5009, C5012, C5014? — NO → Check Q3001, Q3002, Q3003 and surrounding parts.
- YES
- Are there input signals at Pin 7, Pin 9, Pin 11 of IC5002? — NO → Check IC5001, IC5003, Q5007~Q5038 and surrounding parts.
- YES
- Are there L Level Voltage at Pin 16 of IC5002. — NO → Check Pin63 of IC2011 and surrounding parts.
- YES
- B

WAVEFORM OF CHECK POINTS

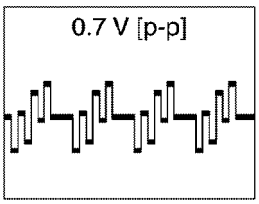
IC2008-Pin18



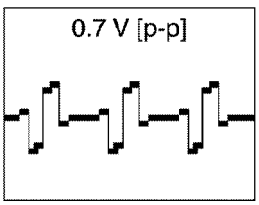
C5009



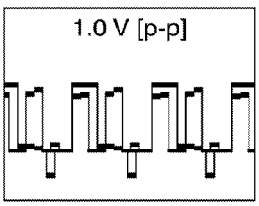
C5014



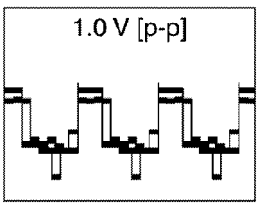
C5012



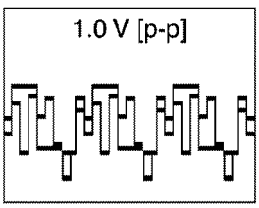
IC5002-Pin7



IC5002-Pin9



IC5002-Pin11

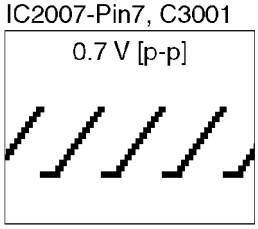


NO PICTURE (RGB SIGNAL INPUT)

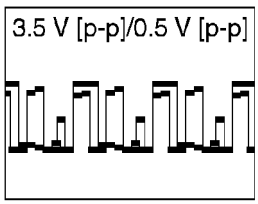
- Is Lamp ON? — NO → Lamp or Power circuit is defective. See troubleshooting of "Power deos not turn on".
- YES
- Are all voltages at P1905 connector of Main C.B.A. correct? — NO → Power circuit is defective. See troubleshooting of "Power does not turn on".
- YES
- Are there RGB signals at C3001, C3002 C3003? — NO → Confirm VGA cable is connected to JK3001 correctly and check RGB signal lines.
- YES
- Are there RGB signals at Pin 1, Pin 3 and Pin 5 of IC5002? — NO → Check Q3001, Q3002, Q3003 and surrounding parts.
- YES
- B
- Are there H level Voltage at Pin 16 of IC5002. — NO → Check Pin 63 of IC2011 and surrounding parts.
- YES
- Are there RGB signals at Pin7, Pin15 and Pin22 of IC2007? — NO → Check Q5010, Q5011 and Q5012 and surrounding parts.
- YES
- Is there RGB signals at Pin41, Pin43 and Pin45 of IC2014? — NO → Check Digital process circuit. See "troubleshooting of digital process circuit".
- YES
- Are there RGB signals at TP3501, TP3502 and TP3503? — NO → Check Q2003~Q2011 and surrounding parts.
- YES
- Are there RGB signals at Pin 14 and Pin 4 of IC3501 and Pin 14 of IC3502 — NO → Check Q3501~Q3515 and surounding parts.
- YES
- Are there signals at P3501, P3502 and P3503 connectors? — NO → Check IC3504~IC3506 and surrounding parts.
- YES
- Check if three Flexible cables from LCD units are correctly connected with connectors on Main C.B.A. (P3501, P3502 and P3503)? — NO → Connect the Flexible cables correctly.
- YES
- Replace LCD Units.

WAVEFORM OF CHECK POINTS

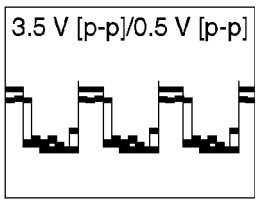
IC2007-Pin7, C3001



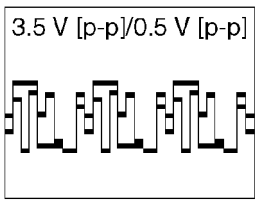
TP3501/ IC2014-Pin41



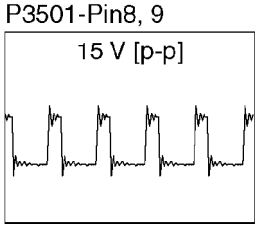
TP3502/ IC2014-Pin43



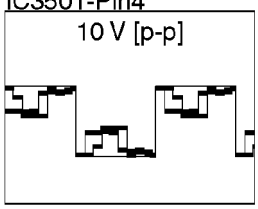
TP3503/ IC2014-Pin45



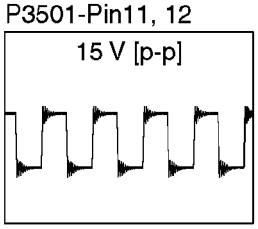
P3501-Pin8, 9



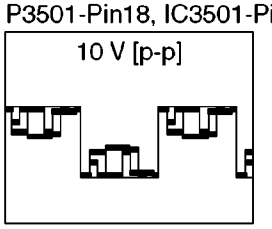
P3502-Pin13, IC3501-Pin4



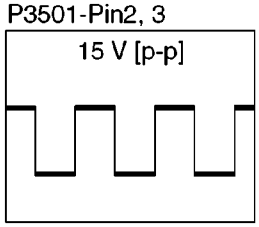
P3501-Pin11, 12



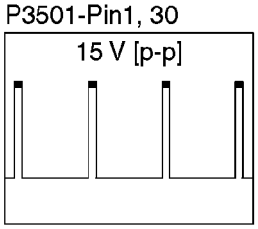
P3501-Pin18, IC3501-Pin14



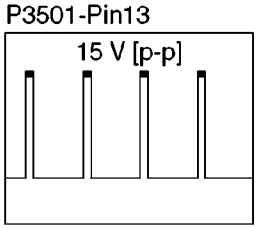
P3501-Pin2, 3



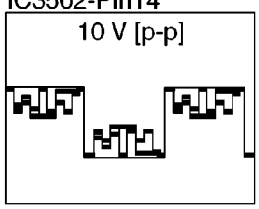
P3501-Pin1, 30

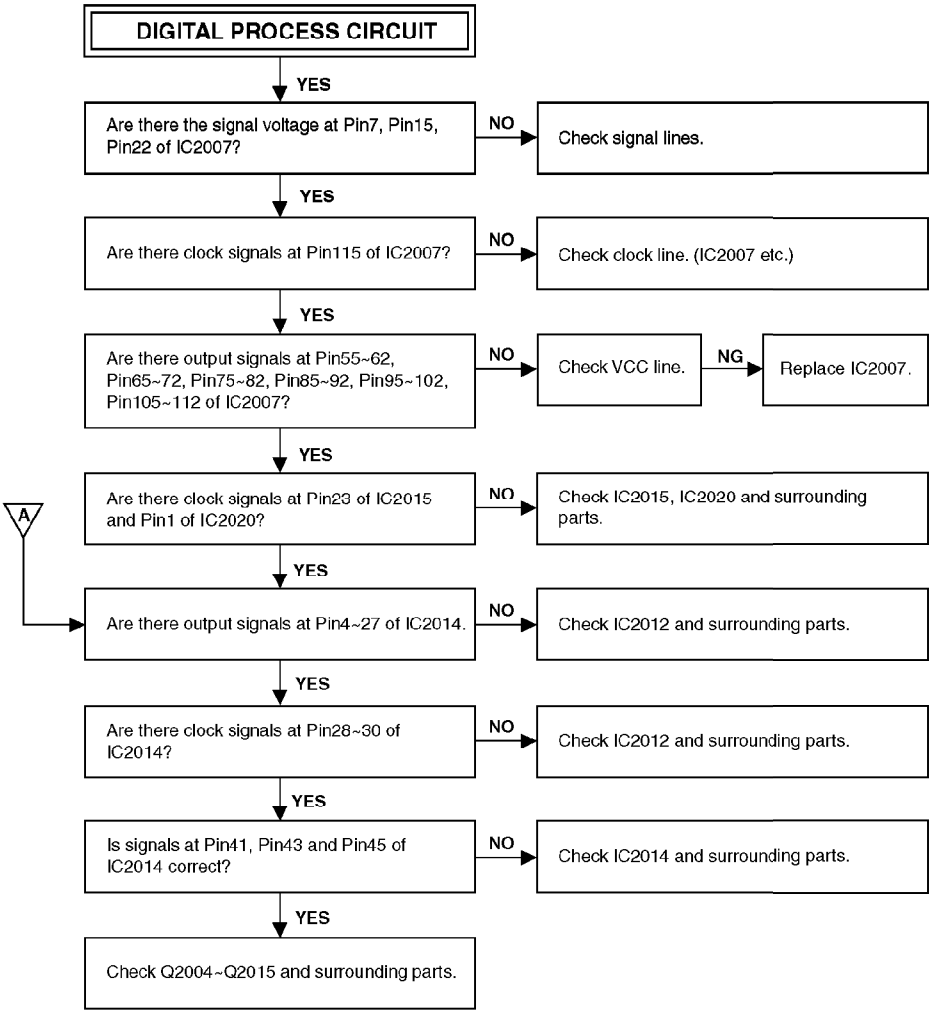


P3501-Pin13

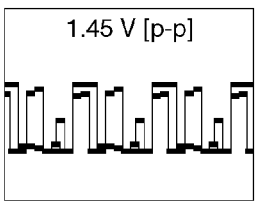


P3503-Pin18, IC3502-Pin14

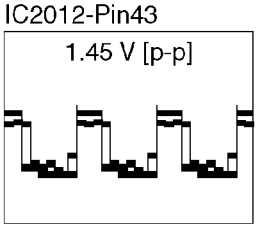




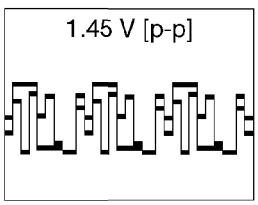
IC2012-Pin41



IC2012-Pin43



IC2012-Pin45



8 SCHEMATIC DIAGRAMS

8.1. SCHEMATIC DIAGRAM NOTES

1. Important safety notice

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.

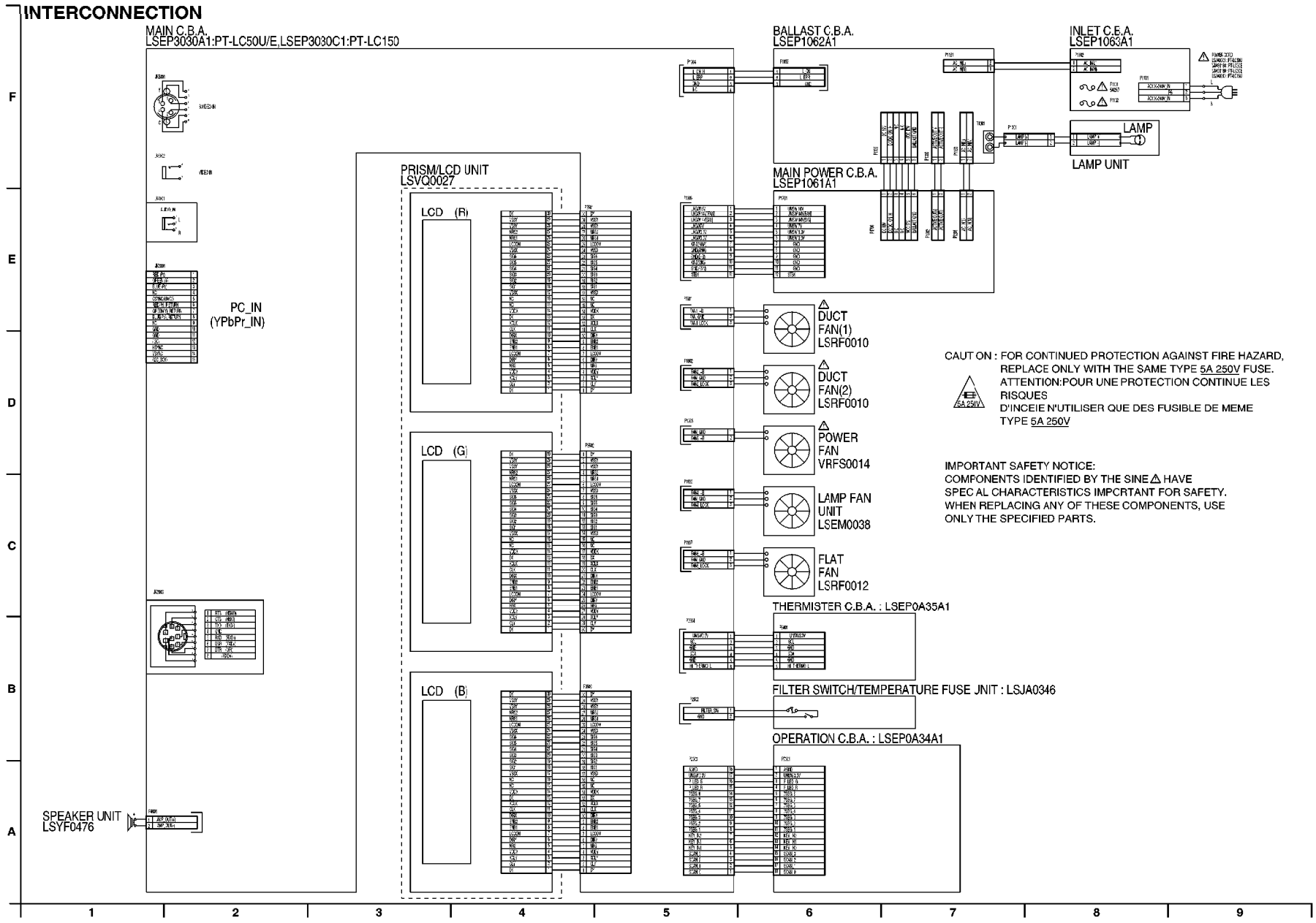
   However, only interchangeable parts will be supplied as service replacement parts.

5. The part number shown on this drawing is only main part number, except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

6. The Schematic Diagram of Main Power C.B.A., Ballast C.B.A. and Inlet C.B.A. is not included in this Service Manual.

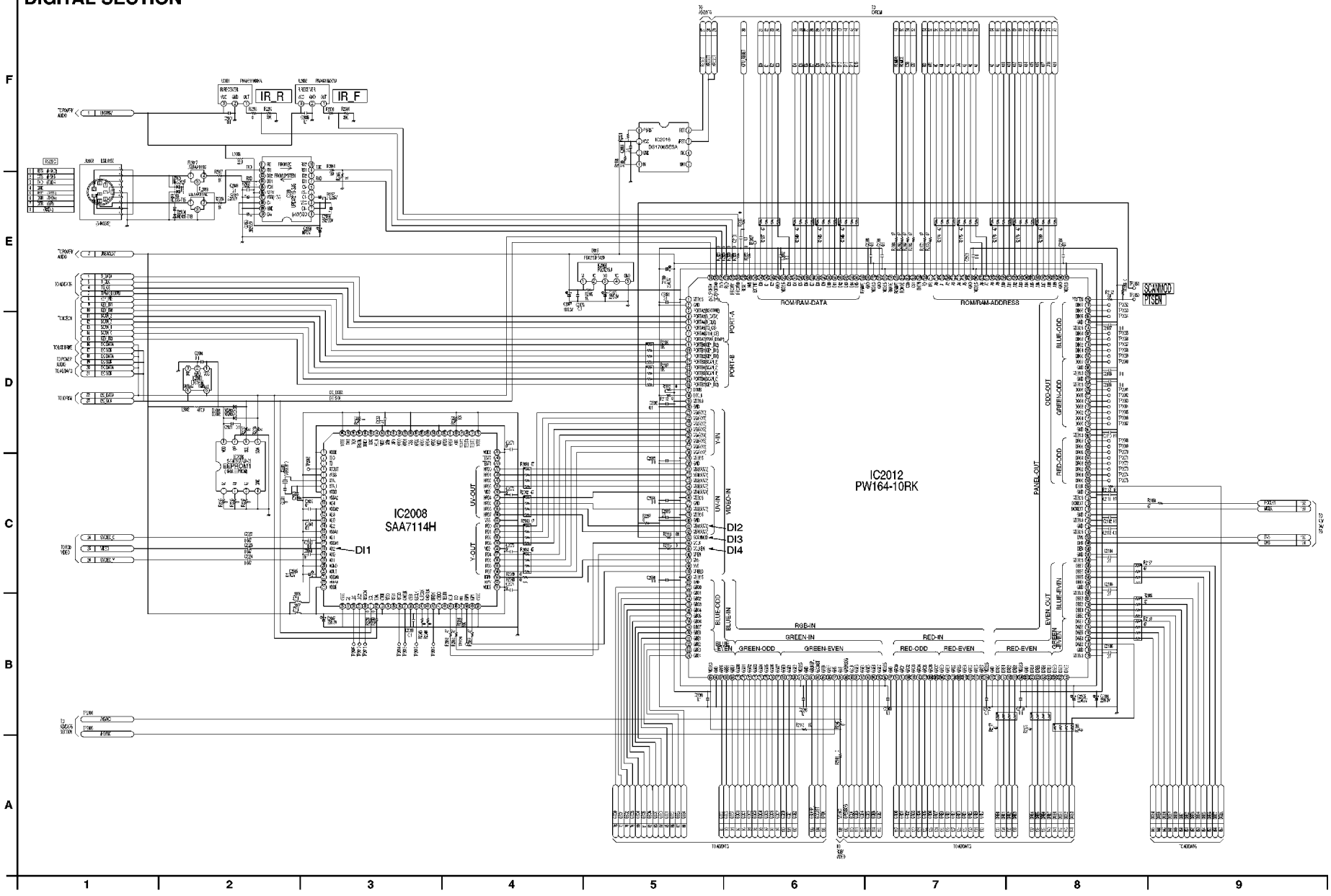
   Because, these Circuit Board Assemblies are supplied as a unit (C.B.A.) only.

8.2. INTERCONNECTION SCHEMATIC DIAGRAM



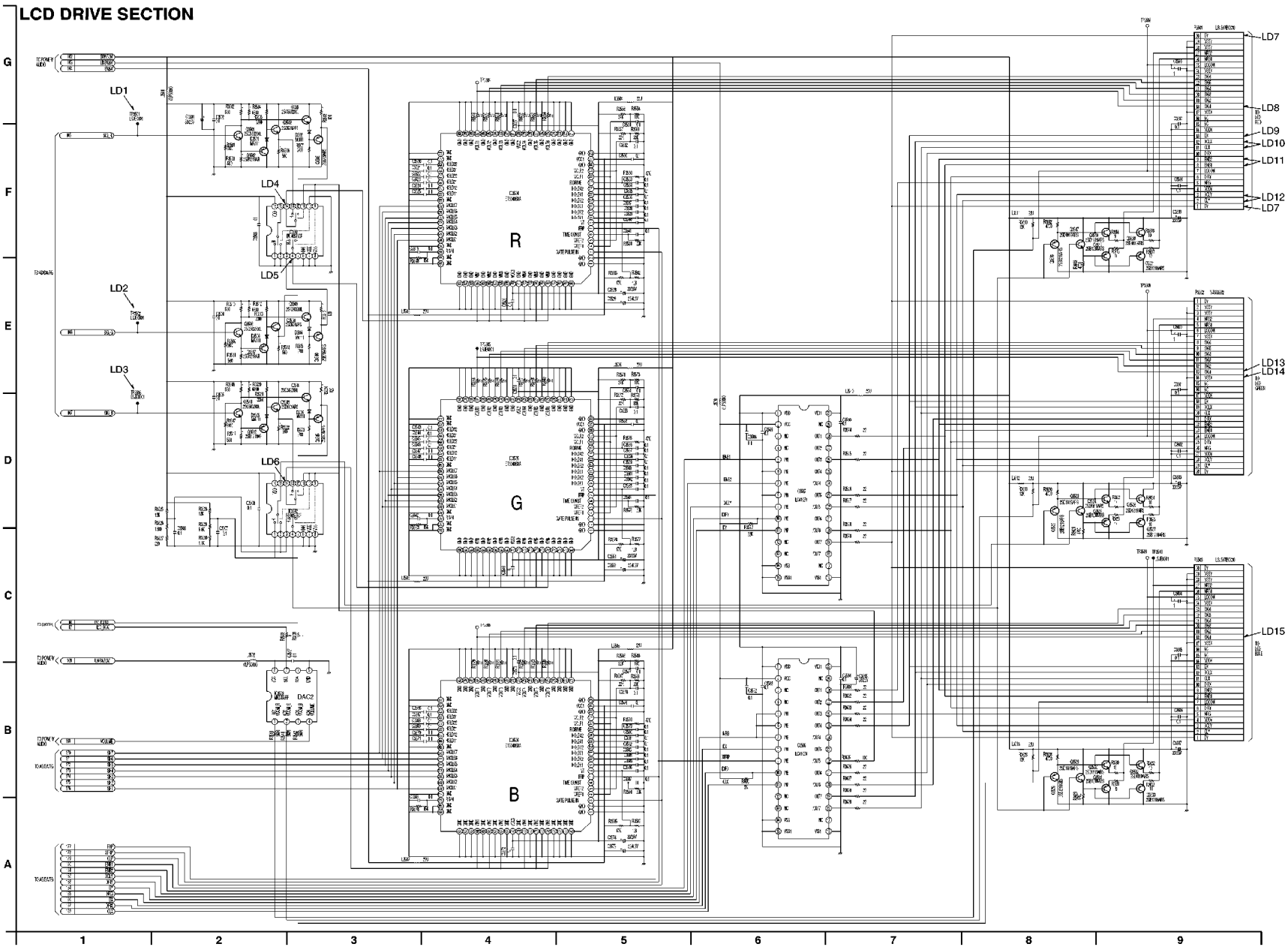
8.3. DIGITAL SECTION SCHEMATIC DIAGRAM

DIGITAL SECTION



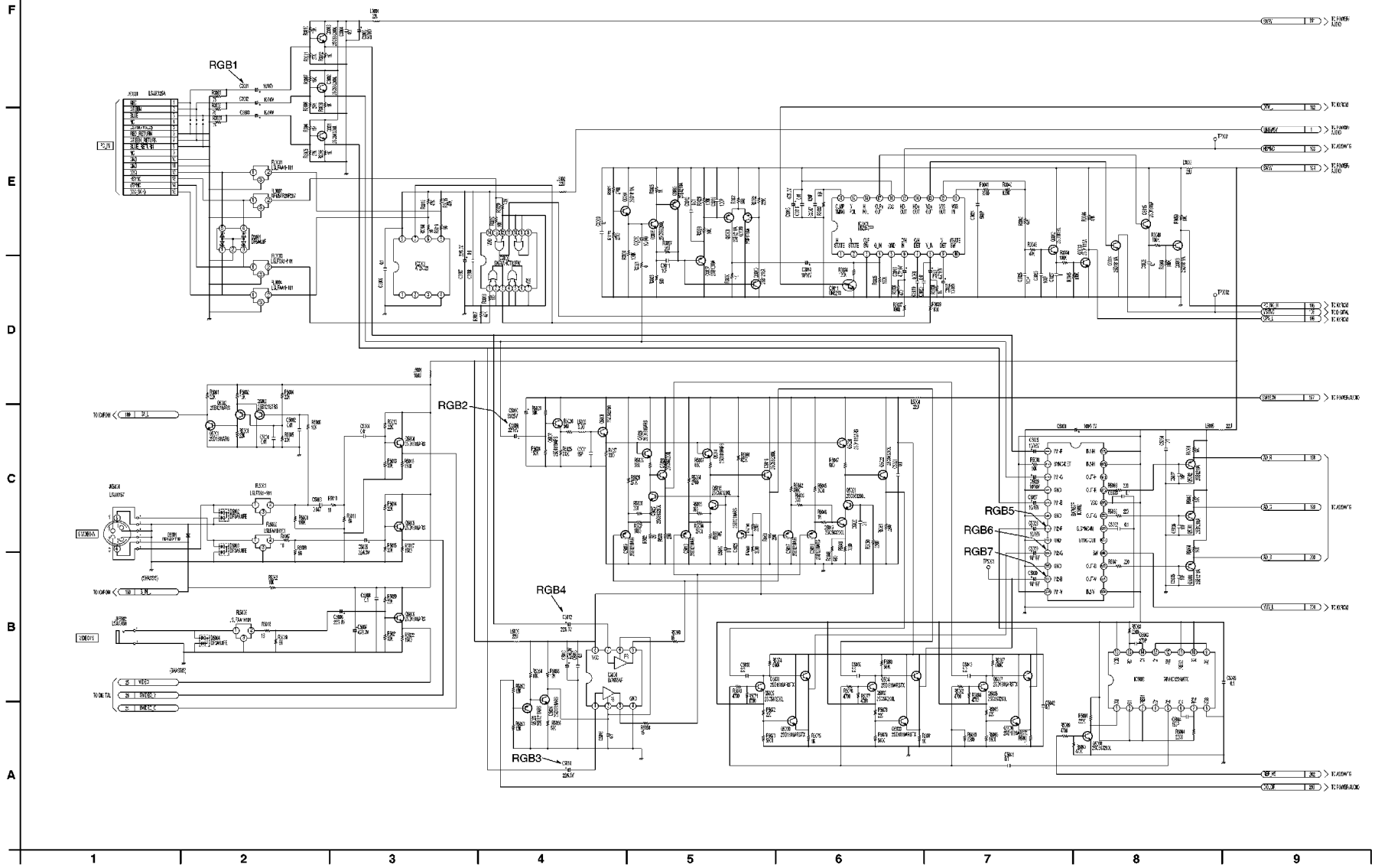
8.4. LCD DRIVE SECTION SCHEMATIC DIAGRAM

LCD DRIVE SECTION



8.5. RGB/VIDEO SECTION SCHEMATIC DIAGRAM

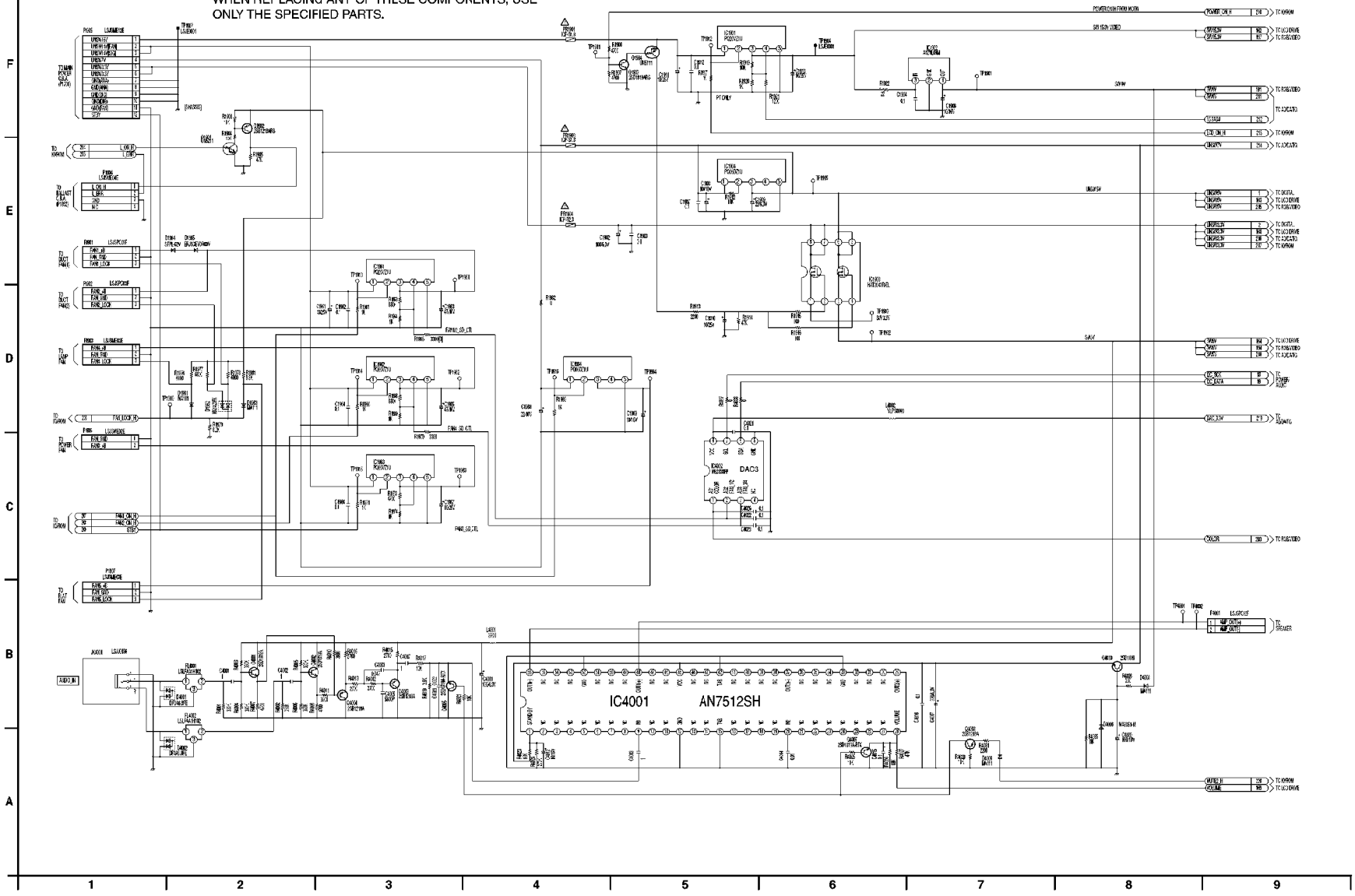
RGB/VIDEO SECTION



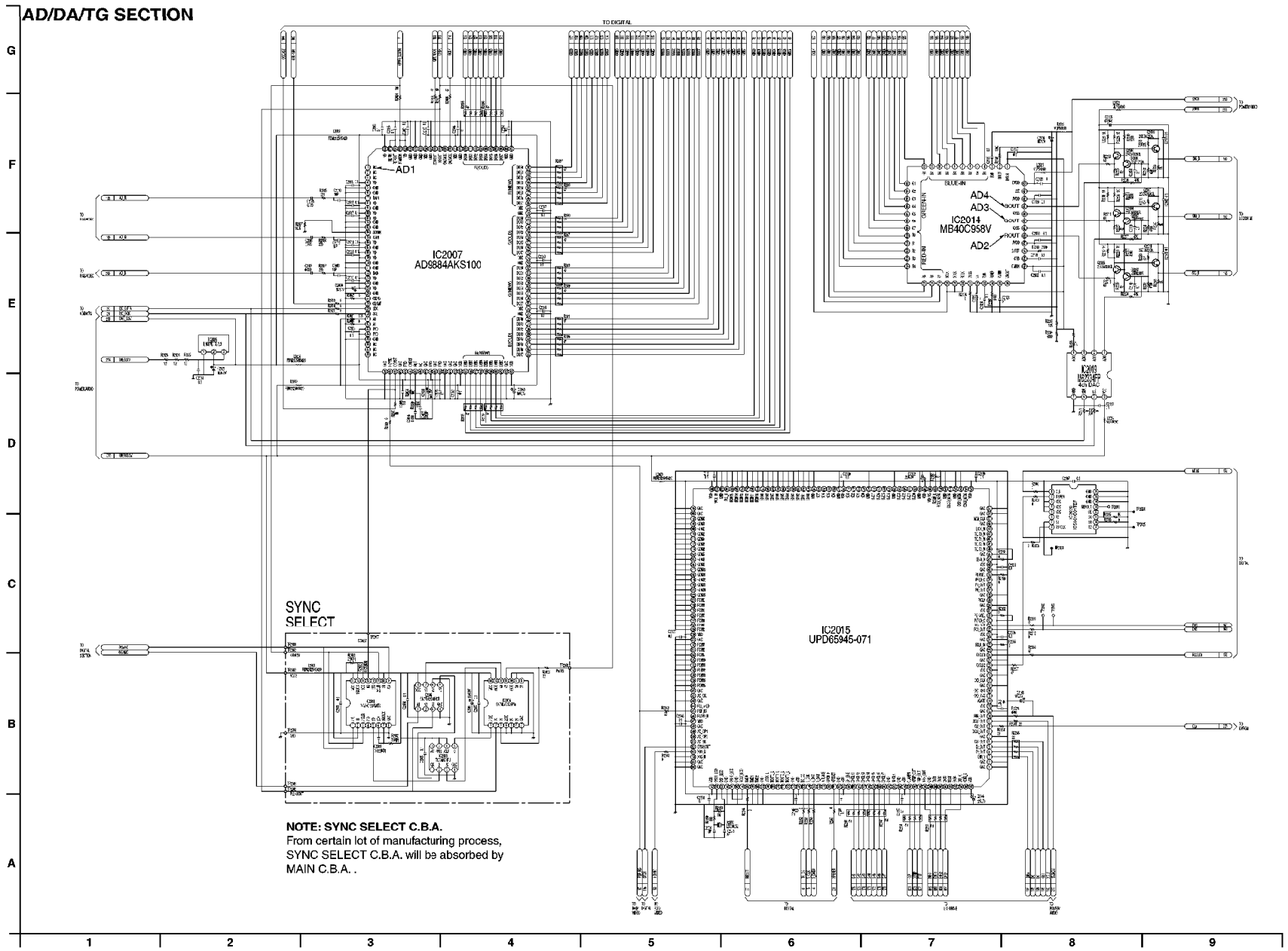
8.6. POWER/AUDIO SECTION SCHEMATIC DIAGRAM

POWER/AUDIO SECTION

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SINE ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

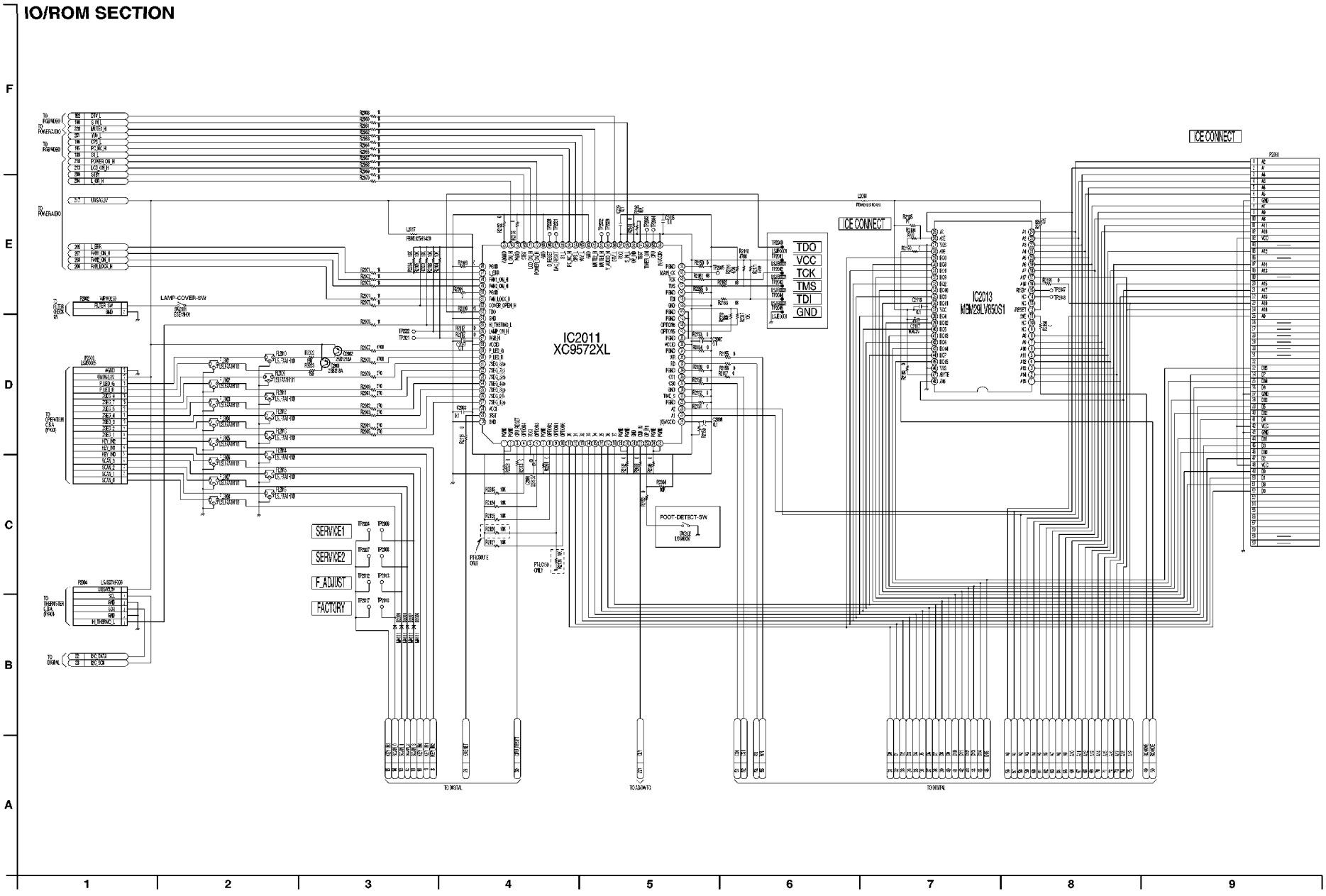


8.7. AD/DA/TG SECTION SCHEMATIC DIAGRAM

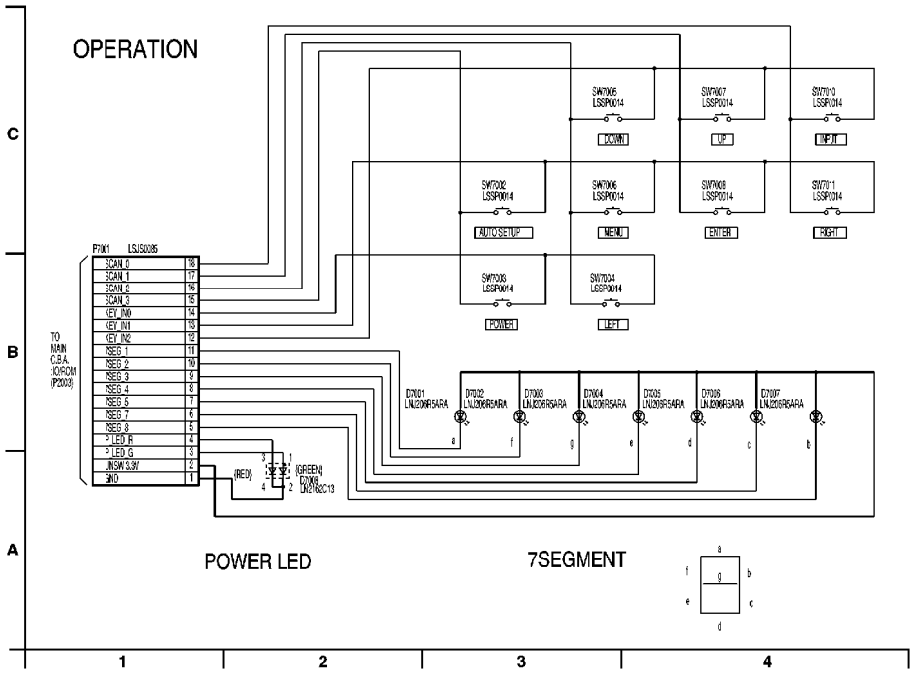


8.8. IO/ROM SECTION SCHEMATIC DIAGRAM

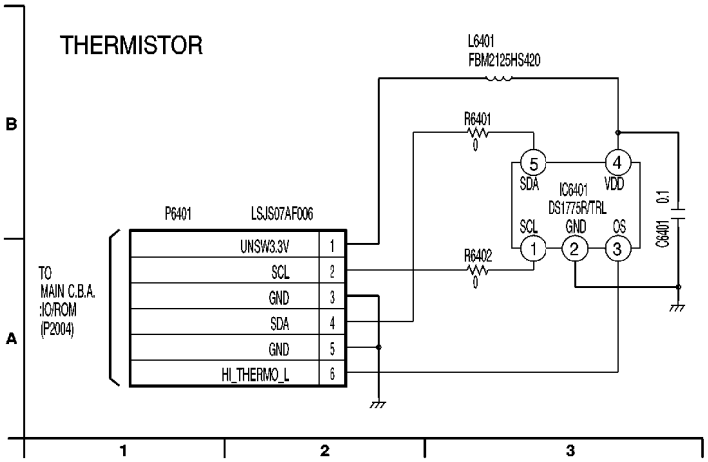
IO/ROM SECTION



8.9. OPERATION SCHEMATIC DIAGRAM (LSEP0A34A1)



8.10. THERMISTOR SCHEMATIC DIAGRAM (LSEP0A35A1)



9 VOLTAGE CHART

9.1. DIGITAL SECTION VOLTAGE CHART

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC2003		1	0	7	1.4	20	0.3	33	3.2	46	0.4	59	0.3	72	0.4	85	3.1	98	0	10	5.0	2	3.2
1	3.2	2	0	8	3.2	21	0	34	3.1	47	0.2	60	0.3	73	2.6	86	3.1	99	0	11	0	3	0
2	0	3	0	9	0	22	0	35	3.1	48	3.2	61	0.3	74	2.5	87	3.1	100	0	12	0	4	3.2
3	-	4	0	10	1.3	23	3.2	36	0.6	49	0.4	62	0.3	75	3.2	88	0	IC2009		13	-9.7	5	3.3
4	3.1	5	3.1	11	3.2	24	0	37	0	50	0	63	0	76	0	89	3.1	1	9.8	14	-9.7	6	-
5	3.1	6	3.1	12	1.3	25	3.2	38	0	51	3.2	64	0.4	77	2.6	90	3.0	2	3.8	15	0	7	-
IC2004		IC2008		13	0	26	0	39	3.2	52	0.4	65	0.4	78	3.1	91	3.0	3	5.0	16	5.0	8	0
1	3.2	1	3.2	14	1.3	27	2.5	40	0	53	0.4	66	0.4	79	2.8	92	3.0	4	-1.1	17	-9.7		
2	3.1	2	3.1	15	0	28	1.5	41	0	54	0.3	67	0.4	80	0.1	93	3.2	5	4.0	18	-1.0		
3	2.5	3	2.6	16	0.3	29	1.5	42	2.9	55	0.3	68	3.2	81	3.1	94	3.1	6	0.2	19	0		
4	-	4	-	17	3.2	30	3.2	43	3.2	56	0.4	69	0.4	82	3.0	95	3.1	7	3.2	20	4.0		
5	0	5	0	18	0.4	31	3.1	44	3.1	57	0.3	70	0.4	83	3.2	96	0	8	5.0	IC2016			
IC2006		6	1.6	19	0	32	3.1	45	0.4	58	3.2	71	0.4	84	3.1	97	0	9	4.9	1	3.2		

9.2. LCD DRIVE SECTION VOLTAGE CHART

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC3501		9	12.6	61	0	32	0	3	0.1	55	1.0	26	5.4	16	0	6	15.2	B	3.6	B	5.1	B	4.0
1	0	10	12.5	62	0	33	7.0	4	4.9	56	3.3	27	0	17	0	7	6.8	Q3508		Q3521		TP3501	4.3
2	0	11	12.6	63	0	34	0	5	9.2	57	0	28	5.4	18	7.0	8	5.4	E	4.1	E	4.5	TP3502	4.3
3	9.8	12	12.6	64	7.0	35	7.0	6	1.2	58	1.2	29	0	19	7.0	9	5.4	C	15.3	C	0	TP3503	4.1
4	7.0	13	12.7	65	0	36	0	7	1.6	59	0	30	15.2	20	7.0	10	15.2	B	4.7	B	4.0	TP3504	7.0
5	4.1	14	12.5	66	7.0	37	7.0	8	1.0	60	0	IC3508		21	7.0	11	7.2	Q3509		Q3522		TP3505	7.0
6	0	15	1.2	67	0	38	0	9	12.5	61	0	1	15.2	22	7.0	12	8.0	E	9.7	E	5.1	TP3506	7.0
7	0	16	4.9	68	7.0	39	0	10	12.5	62	0	2	5.0	23	7.0	13	0.1	C	15.3	C	0	TP3507	6.8
8	0	17	9.2	69	0	40	0	11	12.5	63	0	3	0	24	0	14	15.3	B	10.4	B	4.5	TP3508	5.5
9	7.6	18	0	70	15.1	41	0	12	12.5	64	7.0	4	0	25	6.8	15	0	Q3510		Q3523		TP3509	6.8
10	0	19	5.0	71	0	42	0	13	12.5	65	0	5	0.3	26	4.5	16	0	E	9.7	E	4.0	TP3510	4.5
11	7.6	20	0	72	7.0	43	12.5	14	12.5	66	7.0	6	0.3	27	4.5	17	0	C	0	C	15.3		
12	9.8	21	0	73	0	44	12.5	15	1.2	67	0	7	0.3	28	0	18	7.0	B	9.1	B	4.5		
13	4.2	22	0	74	7.0	45	12.5	16	4.9	68	7.0	8	0	29	0	19	7.0	Q3511		Q3524			
14	7.0	23	0	75	0	46	12.5	17	9.2	69	0	9	1.6	30	0.1	20	7.0	E	3.4	E	4.5		
15	0	24	0	76	7.0	47	12.4	18	0	70	15.2	10	4.5	P3502		21	7.0	C	10.6	C	15.3		
16	15.3	25	7.0	77	0	48	12.5	19	5.0	71	0	11	1.6	1	0.1	22	7.0	B	4.1	B	5.1		
IC3502		26	0	78	0	49	0	20	0	72	7.0	12	0	2	0	23	7.0	Q3512		Q3525			
1	7.0	27	7.0	79	0	50	1.0	21	0	73	0	13	0	3	0	24	0	E	4.0	E	4.5		
2	1.9	28	0	80	0	51	3.3	22	0	74	7.0	14	0	4	4.5	25	6.8	C	0	C	0		
3	1.9	29	7.0	IC3505		52	1.0	23	0	75	0	15	0	5	4.5	26	4.5	B	3.4	B	4.0		
4	4.5	30	15.1	1	0	53	1.0	24	0	76	7.0	16	0	6	5.5	27	4.5	Q3513		Q3526			
5	7.0	31	0	2	0	54	1.0	25	7.0	77	0	17	0	7	0	28	0	E	4.2	E	4.5		
6	0	32	0	3	0.1	55	1.0	26	0	78	0	18	7.2	8	7.0	29	0	C	15.3	C	15.3		
7	0	33	7.0	4	4.9	56	1.0	27	7.0	79	0	19	7.9	9	7.0	30	0.1	B	4.7	B	5.1		
8	0	34	0	5	9.3	57	0	28	0	80	0	20	0	10	7.0	Q3501		Q3514		Q3527			
9	7.6	35	7.0	6	1.2	58	1.2	29	7.0	IC3507		21	15.2	11	7.0	E	3.6	E	9.9	E	4.5		
10	7.6	36	0	7	1.6	59	0	30	15.2	1	15.2	22	7.7	12	7.0	C	10.4	C	15.3	C	0		
11	7.6	37	7.0	8	0	60	0	31	0	2	5.0	23	7.7	13	7.0	B	4.3	B	10.6	B	4.0		
12	9.8	38	0	9	12.6	61	0	32	0	3	0	24	15.2	14	0	Q3502		Q3515		Q3528			
13	4.2	39	0	10	12.5	62	0	33	7.0	4	0	25	0.1	15	0	E	4.1	E	9.9	E	5.1		
14	7.0	40	0	11	12.6	63	0	34	0	5	0	26	4.2	16	0	C	0	C	0	C	0		
15	4.5	41	0	12	12.6	64	7.0	35	7.0	6	1.1	27	4.2	17	15.3	B	3.5	B	9.3	B	4.5		
16	15.3	42	0	13	12.5	65	0	36	0	7	0	28	4.1	18	0.1	Q3503		Q3516		Q3529			
IC3503		43	12.5	14	12.5	66	7.0	37	7.0	8	1.6	29	0	19	8.0	E	4.2	E	5.1	E	4.0		
1	2.7	44	12.6	15	0	67	0	38	0	9	0	30	15.2	20	7.2	C	15.3	C	0	C	15.3		
2	0.9	45	12.5	16	4.9	68	7.0	39	0	10	0	P3501		21	0	B	4.8	B	4.5	B	4.5		
3	2.9	46	12.6	17	9.3	69	0	40	0	11	0	1	0.1	22	5.4	Q3504		Q3517		Q3530			
4	2.1	47	12.5	18	0	70	15.1	41	0	12	0	2	7.7	23	5.4	E	9.7	E	4.0	E	4.5		
5	0	48	12.5	19	5.0	71	0	42	0	13	0	3	7.7	24	5.5	C	15.3	C	15.3	C	15.3		
6	3.1	49	0	20	0	72	7.0	43	12.6	14	0	4	15.3	25	15.2	B	10.4	B	4.5	B	5.1		
7	3.1	50	1.0	21	0	73	0	44	12.7	15	0	5	4.1	26	4.1	Q3505		Q3518		Q3531			
8	3.2	51	1.0	22	0	74	7.0	45	12.6	16	0	6	15.2	27	15.3	E	9.7	E	4.5	E	4.5		
IC3504		52	1.0	23	0	75	0	46	12.7	17	0	7	6.8	28	7.7	C	0	C	15.3	C	0		
1	0	53	1.0	24	0	76	7.0	47	12.6	18	15.2	8	5.4	29	7.7	B	9.1	B	5.1	B	4.0		
2	0	54	1.0	25	7.0	77	0	48	12.7	19	0.1	9	5.4	30	0.1	Q3506		Q3519		Q3532			
3	0.1	55	1.0	26	0	78	0	49	0	20	15.2	10	15.2	P3503		E	3.6	E	4.5	E	4.5		
4	4.9	56	3.3	27	7.0	79	0	50	1.0	21	0	11	7.2	1	0.1	C	10.4	C	0	C	15.3		
5	9.2	57	0	28	0	80	0	51	1.0	22	7.7	12	8.0	2	7.7	B	4.3	B	4.0	B	5.1		
6	1.2	58	1.2	29	7.0	IC3506		52	1.0	23	7.7	13	0.1	3	7.7	Q3507		Q3520		Q3533			
7	1.6	59	0	30	15.1	1	0	53	1.0	24	15.2	14	15.3	4	15.3	E	4.2	E	4.5	E	4.5		
8	1.0	60	0	31	0	2	0	54	1.0	25	0	15	0	5	4.1	C	0	C	15.3	C	0		

9.3. RGB/VIDEO SECTION VOLTAGE CHART

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC3001		13	0.4	20	2.9	12	4.9	E	5.0	B	3.0	E	0	B	0.1	E	2.9	B	10.4	E	9.8	B	3.2
1	-	14	5.0	IC5001		13	4.9	C	8.9	Q3009		C	3.1	Q5004		C	0	Q5015		C	15.1	Q5026	
2	0.4	IC3003		1	2.8	14	5.3	B	5.6	E	3.5	B	0.2	E	2.3	B	2.2	E	3.1	B	10.4	E	9.8
3	-	1	4.4	2	3.5	15	2.1	Q3004		C	0	Q3015		C	5.0	Q5010		C	6.7	Q5021		C	15.1
4	0	2	4.4	3	2.2	16	3.2	E	2.2	B	3.2	E	4.3	B	2.9	E	2.7	B	3.8	E	4.3	B	10.4
5	0	3	0	4	0	17	0	C	4.8	Q3010		C	4.9	Q5005		C	0	Q5016		C	7.2	Q5027	
6	0	4	3.8	5	2.2	18	2.5	B	2.4	E	3.2	B	0.4	E	2.3	B	2.1	E	6.1	B	5.0	E	3.1
7	0	5	0	6	3.5	19	2.1	Q3005		C	0	Q3016		C	5.0	Q5011		C	15.2	Q5022		C	6.7
8	5.0	6	-	7	2.8	20	4.9	E	1.6	B	2.7	E	0	B	2.9	E	2.7	B	6.7	E	6.6	B	3.9
IC3002		7	4.0	8	5.0	21	2.1	C	4.2	Q3011		C	0	Q5006		C	0	Q5017		C	15.1	Q5028	
1	0	8	2.3	IC5002		22	5.3	B	2.2	E	0	B	0.5	E	2.3	B	2.1	E	2.8	B	7.2	E	6.0
2	0	9	3.9	1	3.5	23	4.9	Q3006		C	-0.1	Q5001		C	5.0	Q5012		C	0	Q5023		C	15.2
3	0	10	-	2	4.5	24	4.9	E	4.8	B	3.2	E	0	B	2.9	E	2.7	B	2.2	E	1.0	B	6.7
4	0	11	0.8	3	3.5	Q3001		C	2.7	Q3012		C	4.1	Q5007		C	0	Q5018		C	0		
5	0	12	0.7	4	0	E	4.9	B	4.2	E	0.6	B	0	E	11.1	B	2.1	E	2.8	B	0.5		
6	0	13	0.2	5	3.5	C	8.9	Q3007		C	4.9	Q5002		C	15.1	Q5013		C	0.1	Q5024			
7	0	14	0.8	6	0	B	5.6	E	2.7	B	0.7	E	0.7	B	11.7	E	2.9	B	2.2	E	0.5		
8	0	15	4.2	7	0.4	Q3002		C	0	Q3013		C	0	Q5008		C	0.1	Q5019		C	3.5		
9	0	16	4.9	8	0	E	4.9	B	2.7	E	0	B	2.9	E	10.4	B	2.2	E	2.2	B	1.0		
10	0	17	0.4	9	0	C	8.9	Q3008		C	3.7	Q5003		C	15.1	Q5014		C	4.3	Q5025			
11	0.6	18	0	10	0	B	5.6	E	3.5	B	0.2	E	0.7	B	11.1	E	9.6	B	2.8	E	3.8		
12	0	19	0	11	0.3	Q3003		C	1.4	Q3014		C	0	Q5009		C	15.1	Q5020		C	0		

9.4. POWER/AUDIO SECTION VOLTAGE CHART

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC1901		IC1961		1	3.3	26	-	51	-	2	0	2	0	Q4002		E	4.6						
1	15.7	1	13.9	2	-	27	-	52	0	3	0	3	0	E	2.6	C	6.9						
2	3.0	2	2.9	3	-	28	0.9	53	-	P1904		P4001		C	5.0	B	5.2						
3	15.3	3	8.5	4	-	29	2.1	54	-	1	5.0	1	2.3	B	2.4	TP1901	9.0						
4	0.7	4	1.1	5	-	30	-	55	-	2	3.2	2	2.3	Q4003		TP1902	5.0						
5	0	5	0	6	-	31	-	56	2.3	3	0	Q1901		E	3.1	TP1903	3.3						
IC1902		IC1962		7	-	32	-	IC4002		4		E	0	C	0	TP1904	15.3						
1	9.0	1	13.9	8	-	33	0	1	1.2	P1905		C	0	B	2.5	TP1905	5.0						
2	0	2	3.0	9	1.4	34	-	2	1.4	1	15.7	B	3.0	Q4004		TP1907	0						
3	13.8	3	8.5	10	-	35	-	3	1.4	2	13.9	Q1902		E	2.5	TP1910	0.2						
IC1903		4	1.1	11	-	36	-	4	-	3	13.9	E	5.0	C	0	TP1911	0.6						
1	3.3	5	0	12	0	37	2.4	5	0	4	6.9	C	4.9	B	1.9	TP1912	3.0						
2	14.9	IC1963		13	-	38	-	6	0	5	3.3	B	4.4	Q4005		TP1913	2.9						
3	5.0	1	13.8	14	-	39	-	7	3.1	6	3.3	Q1903		E	0	TP1914	3.0						
4	14.9	2	2.7	15	0	40	-	8	3.3	7	0	E	0	C	0	TP1915	2.7						
5	5.0	3	7.1	16	-	41	-	P1901		8	0	C	0	B	-	TP1916	3.0						
6	5.0	4	1.1	17	-	42	0	1	9.4	9	0	B	0.6	Q4007		TP1961	8.3						
7	3.3	5	0	18	-	43	-	2	0	10	0	Q1904		E	0.9	TP1962	8.3						
8	3.3	IC1964		19	-	44	-	3	0	11	0	E	15.6	C	0	TP1963	7.1						
IC1904		1	6.9	20	1.4	45	4.6	P1902		12	2.8	C	15.6	B	-	TP1964	5.0						
1	6.9	2	3.0	21	-	46	-	1	9.4	P1906		B	0	Q4008		TP4001	2.3						
2	4.8	3	5.0	22	-	47	-	2	0	1	0	Q4001		E	0.4	TP4002	2.2						
3	5.0	4	-	23	-	48	2.3	3	0	2	7.1	E	2.4	C	0.4								
4	0	5	0	24	-	49	-	P1903		P1907		C	5.0	B	0								
5	0	IC4001		25	-	50	-	1	9.4	1	5.0	B	2.4	Q4010									

9.5. AD/DA/TG SECTION VOLTAGE CHART

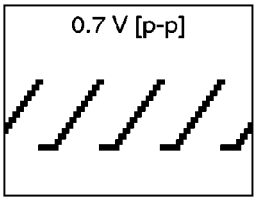
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC2005		36	-	76	1.0	116	1.6	27	1.7	18	-	58	0	98	0	138	0	178	-	**IC2020**		B	1.1
1	0	37	-	77	1.0	117	0.4	28	1.5	19	0	59	0	99	0	139	0	179	-	1	-	**Q2009**	
2	3.3	38	-	78	1.0	118	1.8	29	1.5	20	3.3	60	0	100	0	140	0	180	-	2	0	E	4.3
3	6.5	39	0	79	1.9	119	0	30	1.5	21	1.4	61	0	101	0	141	0	181	-	3	3.3	C	9.0
IC2007		40	2.9	80	1.0	120	3.2	31	0	22	0	62	3.3	102	0	142	-	182	0	4	3.3	B	4.9
1	-	41	0	81	0.9	121	0	32	1.5	23	1.3	63	0	103	0	143	0	183	3.4	5	3.3	**Q2010**	
2	-	42	0	82	1.2	122	0	33	3.5	24	0	64	-	104	0	144	-	184	-	6	1.2	E	4.2
3	-	43	3.3	83	0	123	0	34	1.8	25	0	65	-	105	0	145	2.8	185	3.3	7	-	C	9.0
4	3.3	44	0.1	84	3.3	124	3.3	35	1.8	26	0	66	-	106	0	146	-	186	0.6	8	-	B	4.8
5	0	45	1.7	85	1.0	125	3.2	36	2.0	27	3.3	67	-	107	0	147	3.3	187	0.6	9	-	**Q2011**	
6	0	46	-	86	1.0	126	1.2	37	1.8	28	3.1	68	0	108	0	148	0	188	0.6	10	0	E	4.2
7	0.5	47	0	87	1.0	127	1.2	38	3.5	29	3.2	69	-	109	0	149	-	189	0.6	11	0	C	9.0
8	3.3	48	3.3	88	1.0	128	3.3	39	1.8	30	-	70	-	110	0	150	-	190	0.6	12	-	B	4.9
9	0	49	0	89	1.8	**IC2014**		40	5.0	31	3.3	71	-	111	0	151	-	191	0.6	13	1.3	**Q2016**	
10	3.3	50	3.3	90	1.0	1	1.8	41	1.2	32	3.3	72	-	112	0	152	0	192	0	14	0	1	0
11	3.3	51	0	91	0.9	2	1.8	42	0	33	0	73	0	113	0	153	-	193	-	15	0	2	0.5
12	0	52	0	92	1.2	3	3.5	43	1.2	34	-	74	-	114	0	154	0	194	0	16	0	3	3.3
13	0	53	0	93	0	4	0.8	44	0	35	0	75	-	115	0	155	0	195	3.3	**Q2003**		4	1.7
14	1.3	54	3.3	94	3.2	5	1.2	45	1.3	36	-	76	-	116	0	156	0	196	0.1	E	1.0	5	0.5
15	1.5	55	1.0	95	1.0	6	1.2	46	5.0	37	-	77	-	117	0	157	3.3	197	1.6	C	4.9	6	0.5
16	3.3	56	1.0	96	1.0	7	1.1	47	0	38	-	78	3.3	118	0	158	-	198	1.6	B	1.6	**TP2001**	1.3
17	0	57	1.0	97	1.0	8	1.0	48	5.0	39	0	79	0	119	0	159	-	199	0.3	**Q2004**		**TP2002**	3.1
18	3.3	58	1.0	98	1.0	9	0.9	**IC2015**		40	0	80	-	120	0	160	0	200	0	E	1.0	**TP2003**	3.2
19	3.3	59	2.0	99	1.6	10	1.3	1	0	41	3.3	81	-	121	0	161	1.5	201	1.1	C	4.9	**TP2023**	-
20	0	60	1.1	100	1.2	11	1.9	2	0	42	3.3	82	-	122	0	162	0	202	1.1	B	1.6	**TP2024**	-
21	0	61	1.0	101	1.3	12	1.3	3	0	43	0	83	-	123	0	163	1.5	203	-	**Q2005**		**TP2025**	-
22	0.5	62	1.1	102	1.2	13	0.8	4	0	44	-	84	0	124	0	164	0	204	0	E	1.0		
23	3.3	63	0	103	0	14	1.3	5	0	45	-	85	0	125	0	165	0	205	-	C	4.9		
24	0	64	3.3	104	3.2	15	1.2	6	1.6	46	-	86	0	126	0	166	0	206	4.5	B	1.6		
25	3.3	65	1.0	105	1.0	16	1.0	7	0	47	-	87	0	127	0	167	0	207	-	**Q2006**			
26	0	66	1.0	106	1.0	17	0.9	8	-	48	-	88	0	128	0	168	-	208	3.3	E	1.6		
27	0	67	1.0	107	1.0	18	1.1	9	-	49	0	89	0	129	0	169	-	**IC2019**		C	0		
28	3.2	68	1.0	108	1.0	19	1.7	10	1.6	50	-	90	0	130	3.3	170	-	1	0.3	B	1.1		
29	3.1	69	1.9	109	1.6	20	1.0	11	0.3	51	0	91	0	131	0	171	-	2	0.1	**Q2007**			
30	3.1	70	1.2	110	1.2	21	0.8	12	0	52	0	92	0	132	0	172	-	3	0.6	E	1.6		
31	3.1	71	1.1	111	1.2	22	1.3	13	3.3	53	3.3	93	0	133	0	173	0	4	1.3	C	0		
32	0	72	1.1	112	1.2	23	1.2	14	-	54	-	94	0	134	0	174	3.3	5	0	B	1.1		
33	3.3	73	0	113	0	24	1.0	15	-	55	0	95	0	135	0	175	0	6	3.1	**Q2008**			
34	3.3	74	3.2	114	3.2	25	1.0	16	-	56	0	96	0	136	0	176	0	7	3.1	E	1.6		
35	0	75	1.0	115	1.5	26	1.1	17	0	57	-	97	0	137	0	177	0	8	3.2	C	0		

9.6. IO/ROM SECTION VOLTAGE CHART

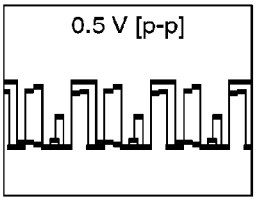
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
IC2011		31	0	62	0	93	3.2	23	-	5	-	36	-	3	0.7	TP2004	0.3						
1	0	32	3.3	63	3.2	94	3.2	24	-	6	1.4	37	-	4	0.7	TP2006	-						
2	0	33	3.3	64	3.7	95	3.2	25	1.4	7	-	38	-	5	0.1	TP2007	0.3						
3	0	34	0	65	0.1	96	3.2	26	-	8	0.7	39	-	6	0.1	TP2008	-						
4	3.2	35	3.3	66	4.0	97	3.2	27	-	9	-	40	-	7	0.1	TP2012	0.3						
5	3.2	36	3.3	67	0	98	3.2	28	-	10	0.3	41	-	8	3.2	TP2013	-						
6	3.2	37	0	68	3.2	99	-	29	-	11	-	42	-	9	3.2	TP2017	0.3						
7	0	38	3.2	69	0	100	0	30	-	12	0.6	43	-	10	3.2	TP2018	-						
8	3.2	39	0	70	3.2	IC2013		31	-	13	-	44	-	11	3.2	TP2021	3.2						
9	3.2	40	3.2	71	3.2	1	-	32	-	14	-	45	-	12	3.2	TP2022	3.2						
10	3.2	41	3.2	72	3.2	2	-	33	-	15	-	46	-	13	3.2	TP2028	3.2						
11	-	42	0	73	0	3	-	34	-	16	-	47	-	14	3.2	TP2029	0						
12	1.5	43	0	74	3.2	4	-	35	-	17	-	48	-	15	0.1	TP2031	0						
13	1.4	44	0	75	0	5	-	36	-	18	1.3	49	-	16	2.0	TP2032	0						
14	1.2	45	3.2	76	0	6	-	37	-	19	-	50	1.5	17	3.2	TP2040	2.7						
15	1.1	46	0	77	3.2	7	-	38	-	20	0	51	-	18	0	TP2041	3.2						
16	1.2	47	3.2	78	3.2	8	-	39	-	21	-	52	-	P2004		TP2042	0.1						
17	1.3	48	0.1	79	3.2	9	-	40	-	22	1.8	53	-	1	3.2	TP2043	3.2						
18	1.4	49	0	80	0	10	-	41	-	23	-	54	-	2	3.1	TP2044	3.2						
19	0	50	0	81	0.2	11	-	42	-	24	0.1	55	-	3	0	TP2045	0						
20	0	51	3.2	82	0.3	12	-	43	-	25	-	56	-	4	3.1	TP2047	2.3						
21	0	52	1.7	83	2.7	13	-	44	-	26	-	57	-	5	0	TP2048	-						
22	1.6	53	3.2	84	0	14	-	45	-	27	-	58	-	6	3.2	TP2083	3.2						
23	3.2	54	3.2	85	3.2	15	-	46	-	28	-	59	-	Q2001		TP2084	1.7						
24	0	55	0	86	3.2	16	-	47	-	29	-	60	-	E	3.2	TP2085	-						
25	0	56	4.3	87	3.2	17	-	48	-	30	-	P2002		C	-								
26	3.2	57	3.2	88	3.2	18	-	P2001		31	-	1	0	B	3.3								
27	1.4	58	3.2	89	0	19	-	1	-	32	-	2	0	Q2002									
28	2.3	59	0	90	3.2	20	-	2	1.4	33	-	P2003		E	3.2								
29	0	60	0	91	3.2	21	-	3	-	34	-	1	0.8	C	3.2								
30	0	61	0	92	3.2	22	-	4	1.1	35	-	2	0.7	B	2.6								

10 WAVEFORM

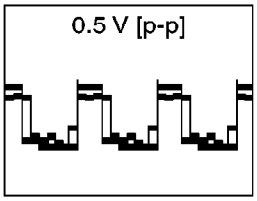
AD1



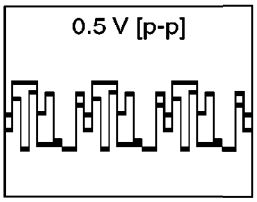
AD2



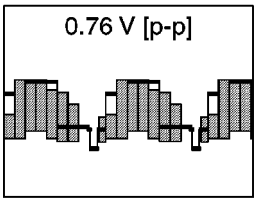
AD3



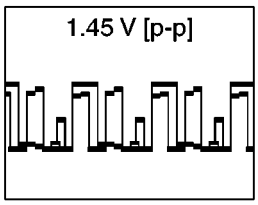
AD4



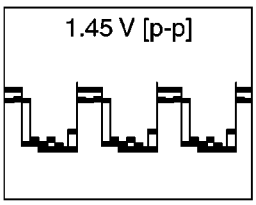
DI1



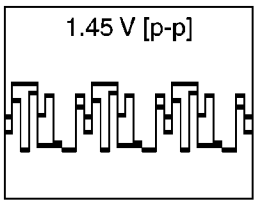
DI2



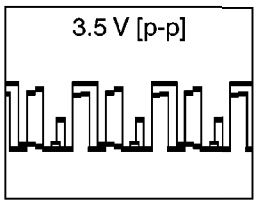
DI3



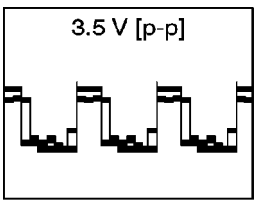
DI4



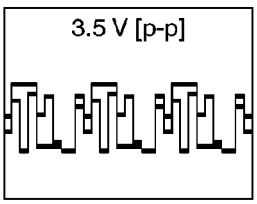
LD1



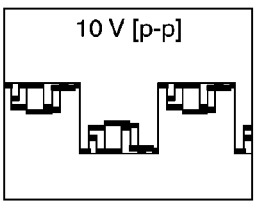
LD2



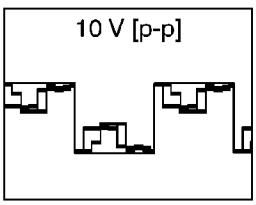
LD3



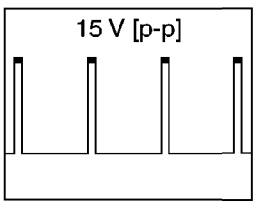
LD4



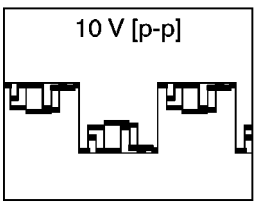
LD5



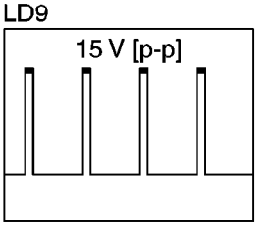
LD7



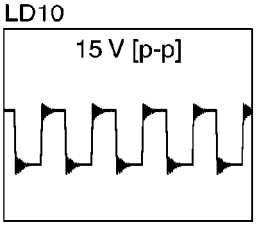
LD8



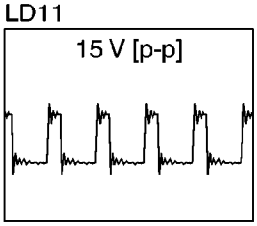
LD9



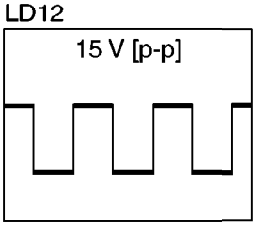
LD10



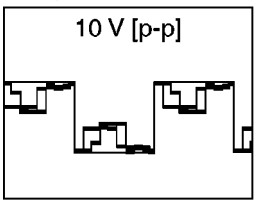
LD11



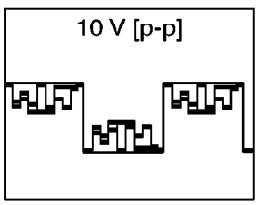
LD12



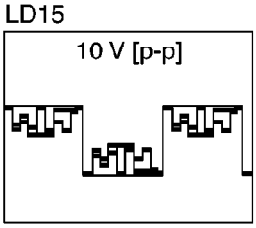
LD13



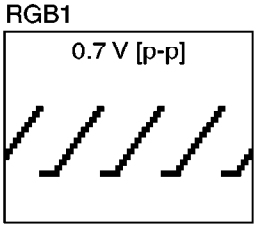
LD14



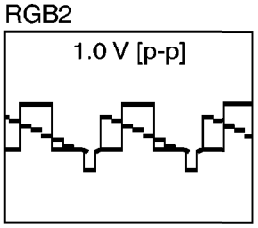
LD15



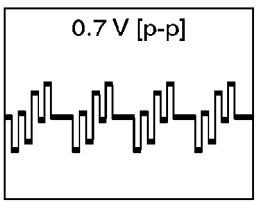
RGB1



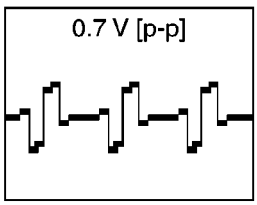
RGB2



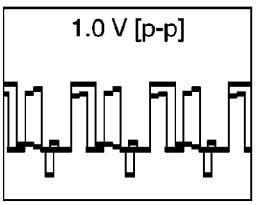
RGB3



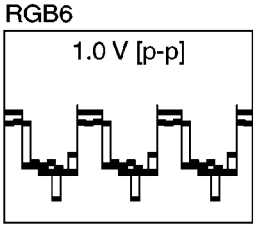
RGB4



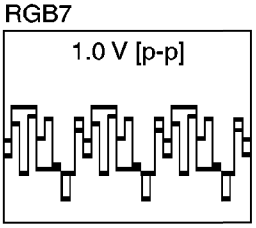
RGB5



RGB6



RGB7



11 CIRCUIT BOARDS

11.1. CIRCUIT BOARDS NOTES

1. Important safety notice

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.

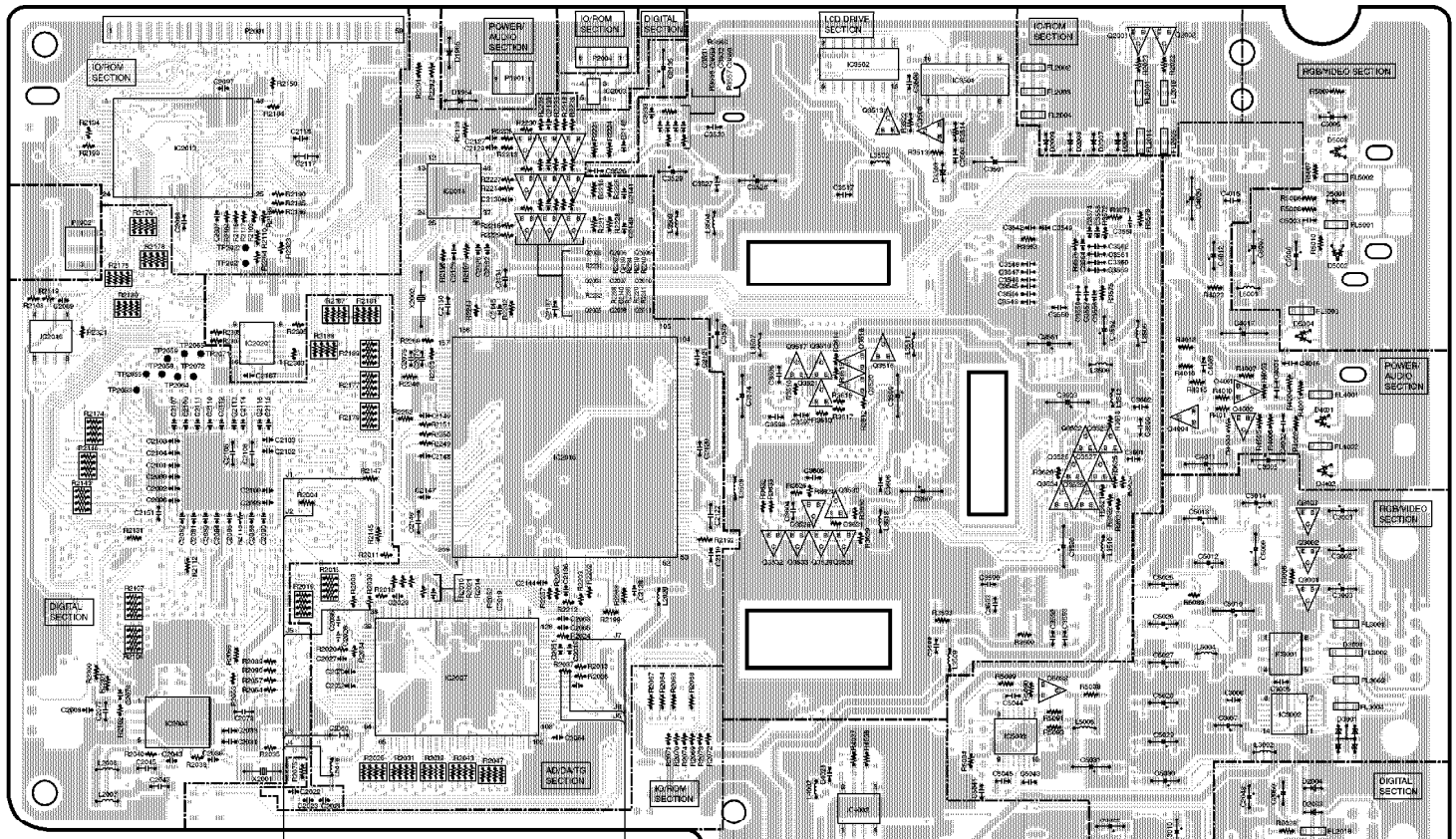
   However, only interchangeable parts will be supplied as service replacement parts.

5. The Circuit Board of Main Power C.B.A., Ballast C.B.A. and Inlet C.B.A. is not included in this Service Manual.

   Because, these Circuit Board Assemblies are supplied as a unit (C.B.A.) only.

11.2. MAIN C.B.A. (LSEP3030A1: PT-LC50U/E, LSEP3030C1: PT-LC150)

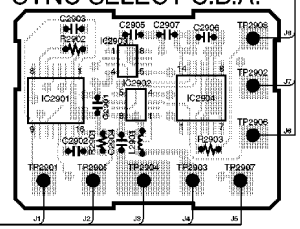
MAIN C.B.A.



(COMPONENT SIDE)

(QUADRUPLE PATTERNS)

SYNC SELECT C.B.A.

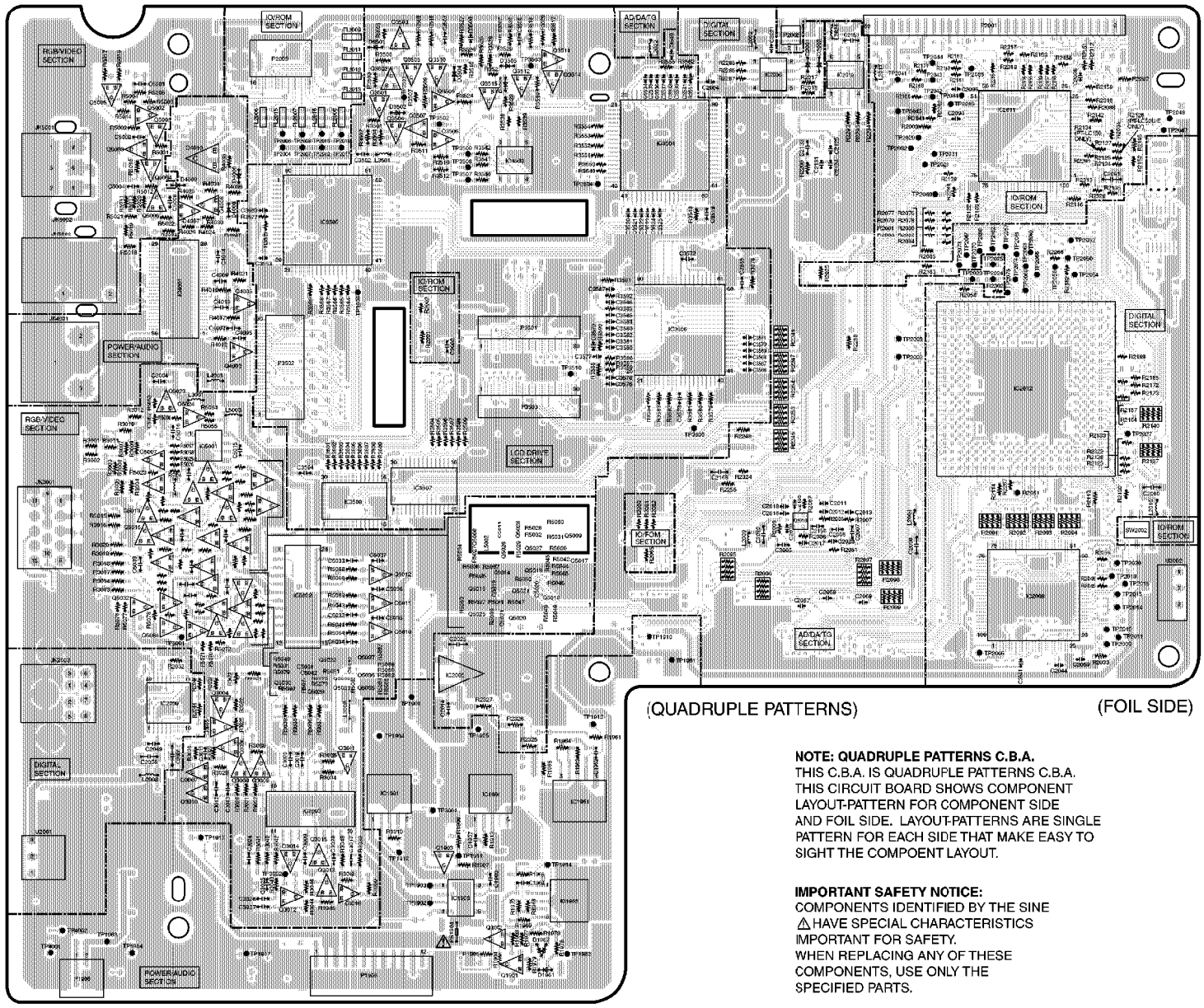


J1: Blue J5: Red
J2: Green J6: Black
J3: Brown J7: White
J4: Yellow J8: Orange

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SINE ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE: SYNC SELECT C.B.A.
From certain lot of manufacturing process, SYNC SELECT C.B.A. will be absorbed by MAIN C.B.A. .

MAIN C.B.A.

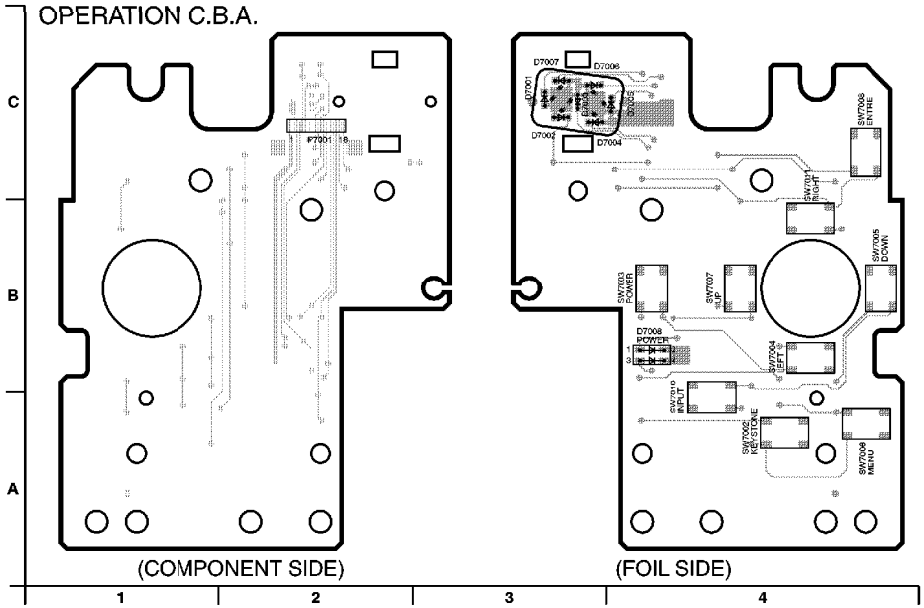


(QUADRUPLE PATTERNS) (FOIL SIDE)

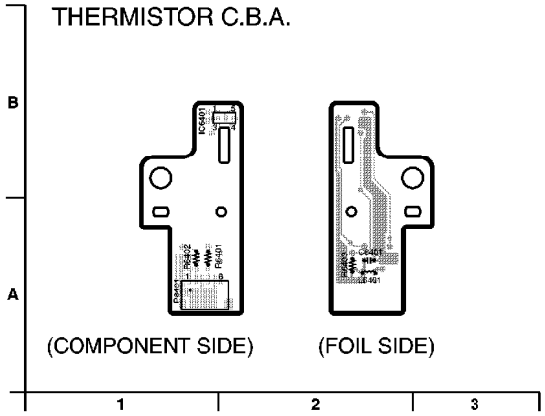
NOTE: QUADRUPLE PATTERNS C.B.A.
THIS C.B.A. IS QUADRUPLE PATTERNS C.B.A.
THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT-PATTERNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPOENT LAYOUT.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SINE ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

11.3. OPERATION C.B.A. (LESP0A34A1)



11.4. THERMISTOR C.B.A. (LSEP0A35A1)



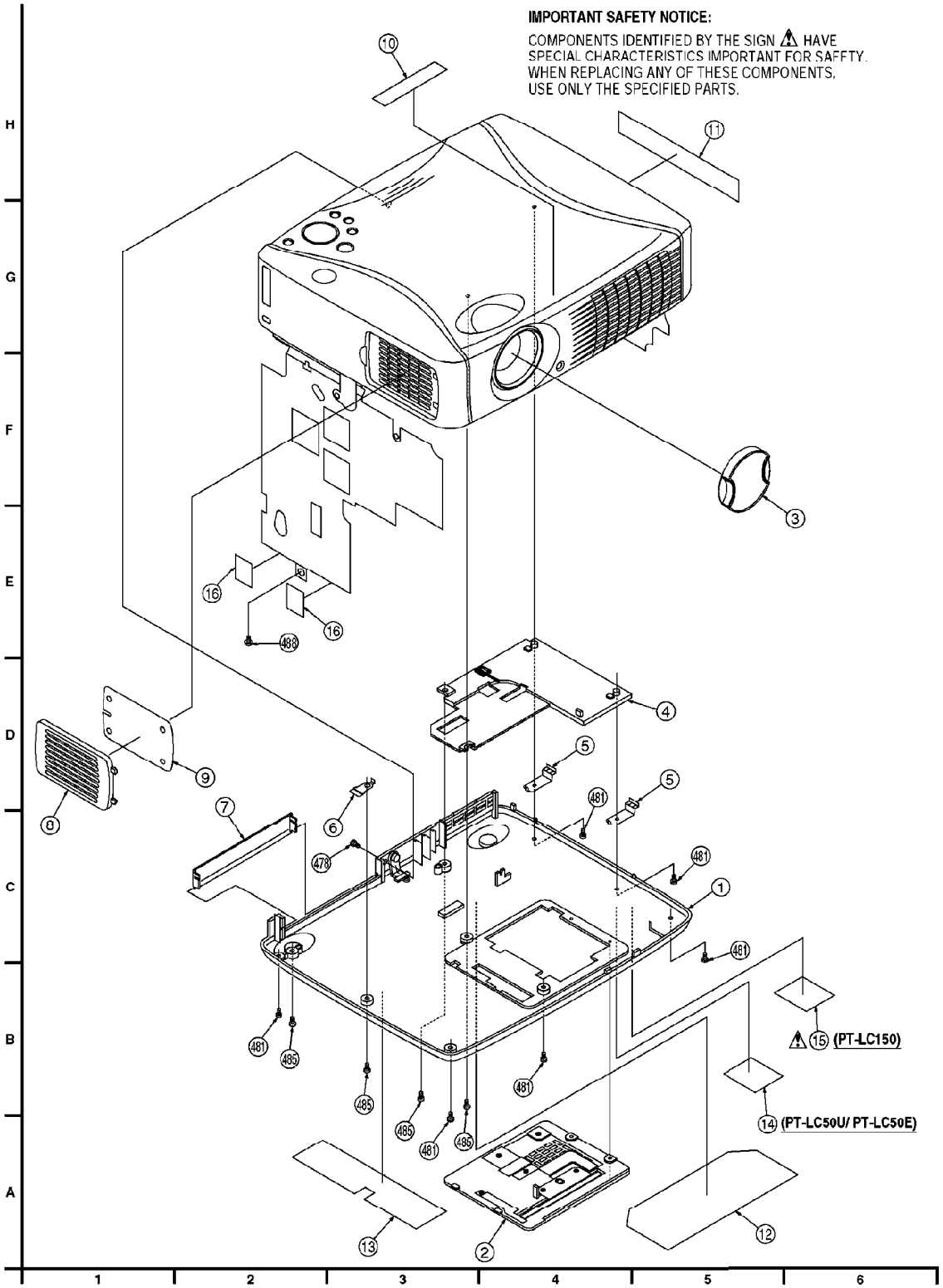
12 EXPLODED VIEWS

12.1. BOTTOM CASE SECTION

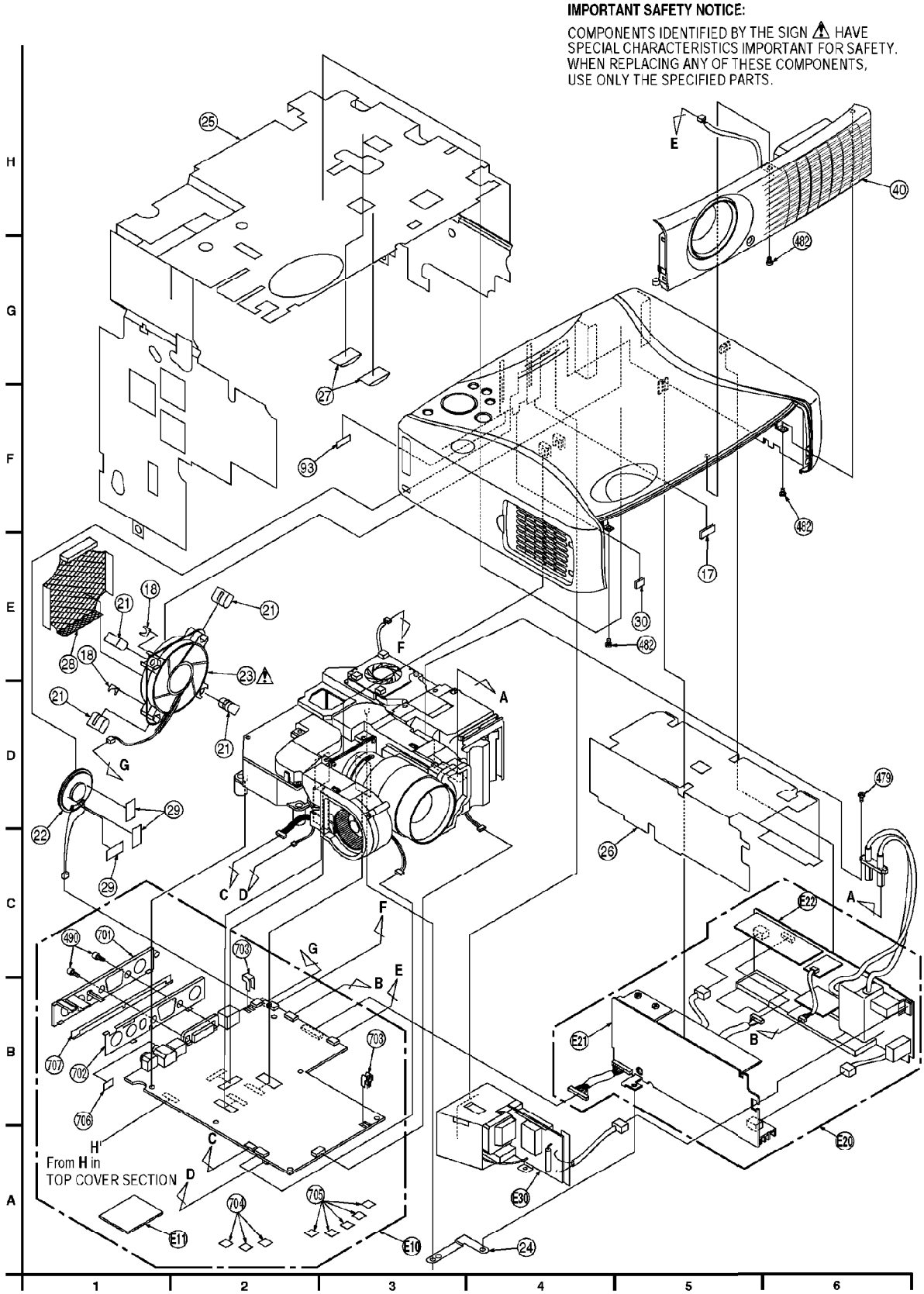
Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFFTY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



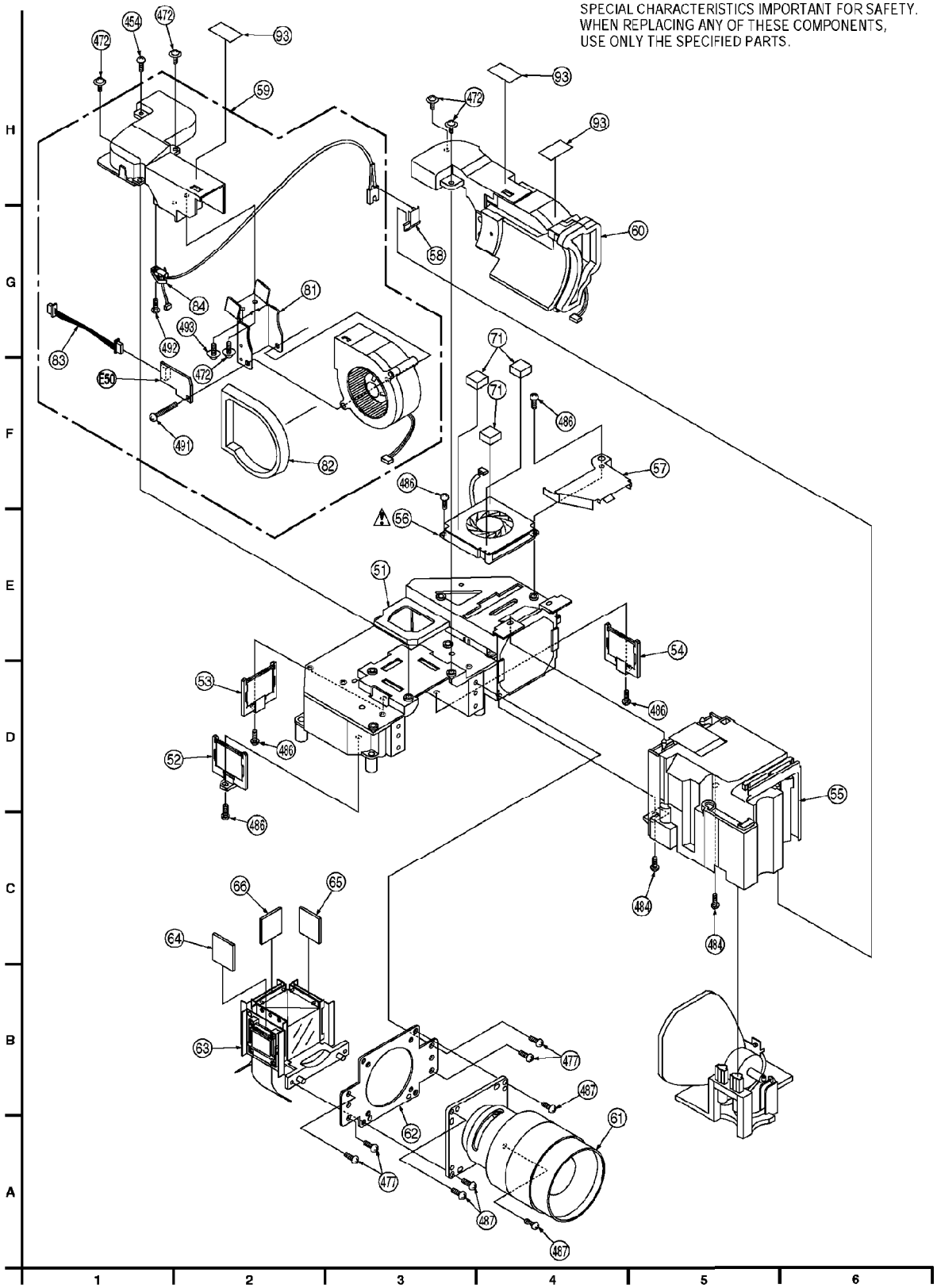
12.2. TOP CHASSIS SECTION


IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.
From H in TOP COVER SECTION

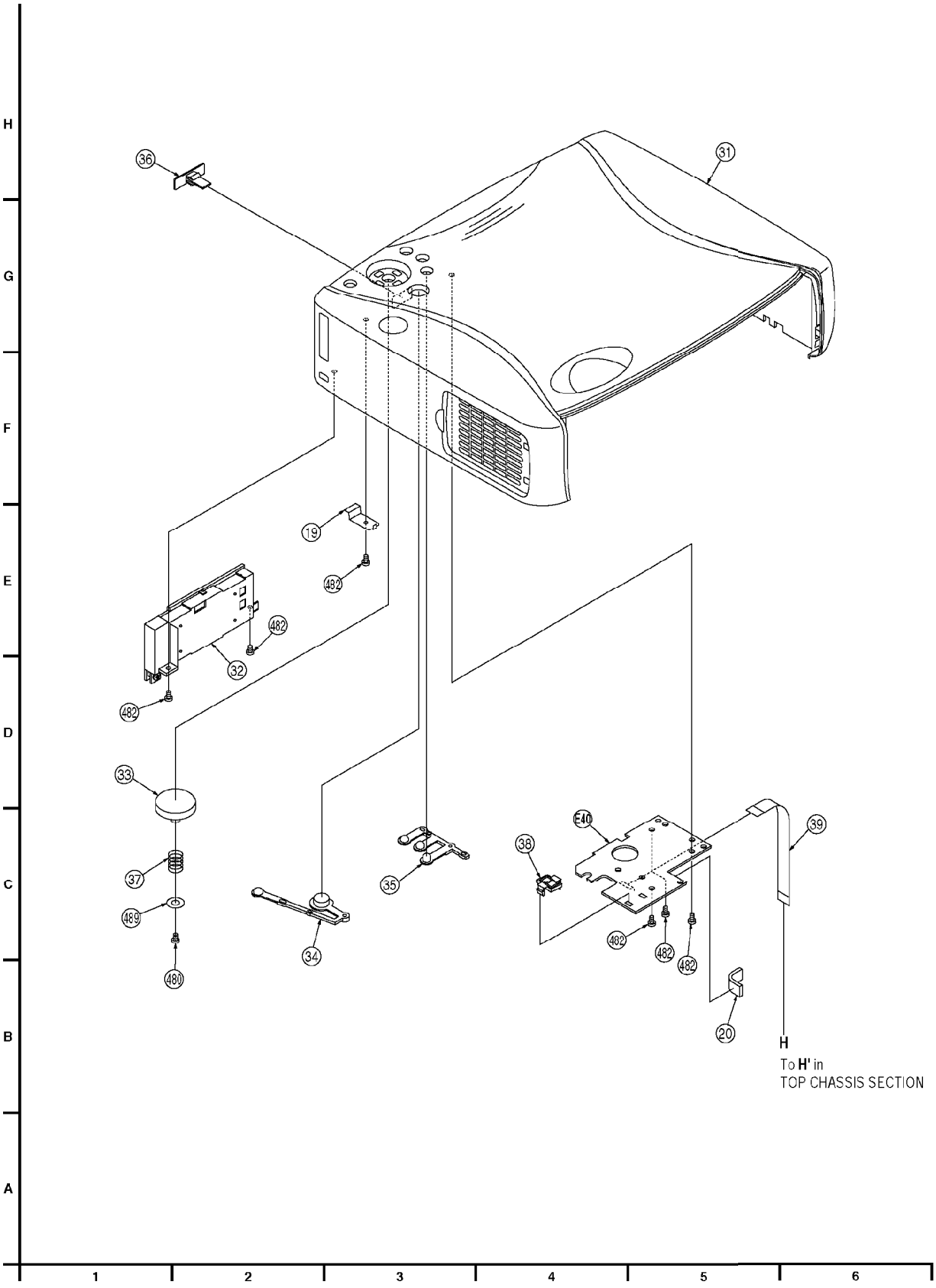
12.3. OPTICAL BLOCK SECTION

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



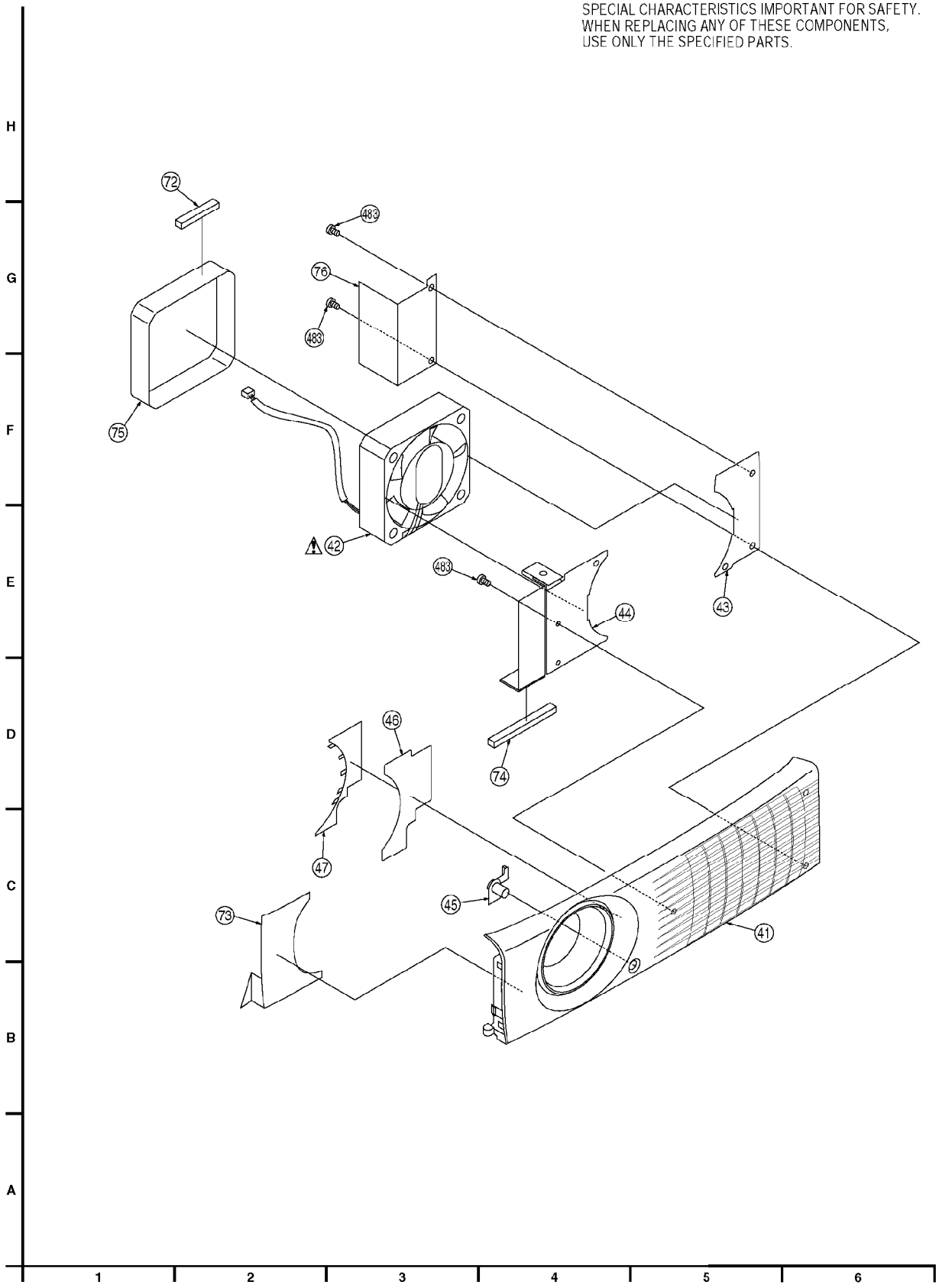
12.4. TOP COVER SECTION



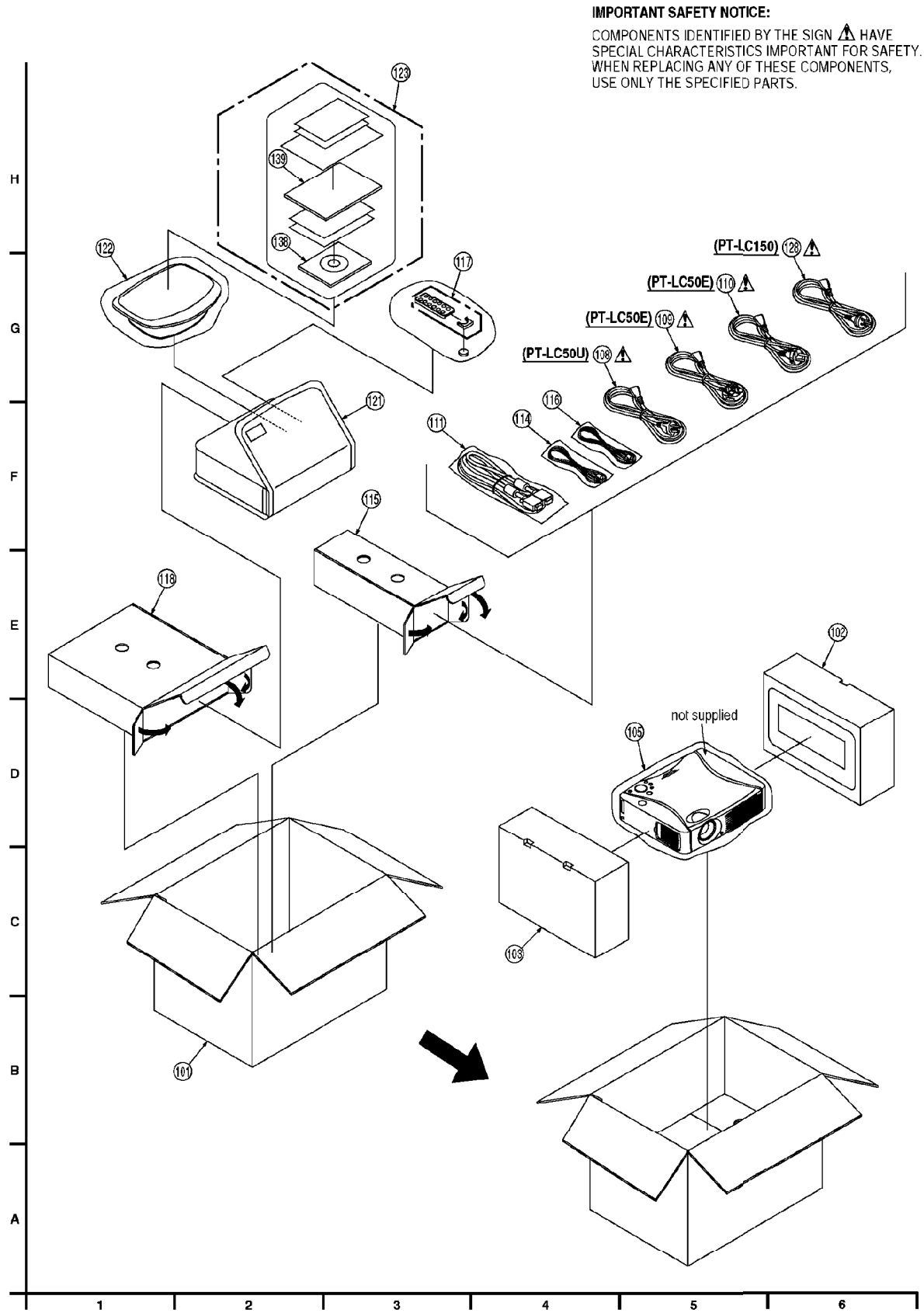
12.5. FRONT COVER SECTION

IMPORTANT SAFETY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



12.6. PACKING SECTION



13 REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

13.1. REPLACEMENT NOTES

13.1.1. General Notes

1. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. SPECIAL NOTE

   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4. Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.

6. Parts with mark "MKA" in the Remarks column are supplied from MKA. Others are supplied from MKE.

7. Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.

13.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.

2. The Infrared Remote Control Unit (Ref. No. 117) replacement part is available as a complete assembly unit only.

13.1.3. Electrical Replacement Notes

1. Unless otherwise specified;

   All resistors are in Ω, 1/4 W, carbon, K = 1 000 Ω,

   M = 1 000 $k^1/_2$.

   All capacitors are in μF, P = μμF.

   All coils are in μH, M = 1 000 μH.

2. Abbreviation

   RTL: Retention Time Limited

   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

   NR: Non Repairable Board Ass'y

   MGF CHIP: Metal Glaze Film Chip

   C CHIP: Ceramic Chip

   COMPLX CMP: Complex Component

   W FLMPRF: Wirewound Flameproof

   C.B.A.: Circuit Board Assembly

   P.C.B.: Printed Circuit Board

   E.S.D.: Electrostatically Sensitive Devices

3. SERVICE OF CHIP PARTS

   When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.

4. When replacing 0 resistor, a wire can be substituted for it.

5. C.B.A. replacement note:

   Following C.B.A.s are supplied as a Unit(C.B.A.) only. Please note that individual parts on C.B.A. are NOT supplied.

   - E11 Sync Control C.B.A.
   - E21 Main Power C.B.A.
   - E22 Ballast C.B.A.
   - E30 Inlet C.B.A.

13.2. MECHANICAL REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANICAL REPLACEMENT PARTS	
1	LSYK0554	BOTTOM CASE UNIT,ABS RESIN	1
2	LSYF0468	LAMP COVER UNIT	1
3	LSYF0475	LENS CAP UNIT	1
4	LSXY0256	BALLAST HOLDER UNIT	1
5	LSMA0490	JOINT PLATE R,STAINLESS	1
6	LSMA0489	JOINT PLATE L,STAINLESS	1
7	LSGK0076	JACK DOOR	1
8	LSKF0356	FILTER COVER	1
9	LSMF0058	FILTER	1
10	LSQL0980	CAUTION LABEL TOP	1
11	LSQL1042	CAUTION LABEL SIDE	1
12	LSQL1045	CAUTION LABEL BOTTOM-A	1 PT-LC50U/PT-LC50E
12	LSQL1046	CAUTION LABEL BOTTOM-A	1 PT-LC150
13	LSQL1138	CAUTION LABEL BOTTOM-B	1 PT-LC50U/PT-LC50E
13	LSQL1043	CAUTION LABEL BOTTOM-B	1 PT-LC150
14	LSQL1039	CAUTION LABEL BOTTOM-C	1 PT-LC50U
14	LSQL1040	CAUTION LABEL BOTTOM-C	1 PT-LC50E
15	LSQL0903	LABEL	⚠ 1 PT-LC150
16	LSSC0460	BARRIER JOINT TAPE	1
17	LSSC0462	SHIELD SHEET B,POLYESTER	2
18	LSMZ0303	FAN BARRIER	2
19	LSMA0516	SUPPORT PLATE,STAINLESS	4
20	LSMX0107	SPACER	4
21	LSMG0083	FAN PIECE	2
22	LSYF0476	SPEAKER UNIT	2
23	VRFS0014	POWER FAN	⚠ 2
24	LSMA0493	MAIN GROUNDING PLATE STEEL	2
25	LSXY0251	BARRIER UNIT	2
26	LSMZ0279	BALLAST BARRIER-A	2
27	LSMC0106	SPRING PLATE,COPPER	2
28	LSSC0458	FAN SHIELD NET,STAINLESS	2
29	VMFS0213	SHEET,NYLON+RAYON	2 MKA
30	LSSC0461	SHIELD SHEET A,POLYESTER	2
31	LSYF0470	TOP COVER UNIT	4
32	LSXY0259	REMOTE CONTROL HOLDER UNIT	4
33	LCXU0007	OPERATION BUTTON A UNIT	4
34	LSGU0207	OPERATION BUTTON B	4
35	LSGU0208	OPERATION BUTTON C	4
36	LSGT0054	EJECT KNOB	4
37	LSMB0250	SPRING	4
38	LSGL0349	SEGMENT PIECE	4
39	LSJW0021	FLEXIBLE FLAT CABLEW/OUTPLUG DC 3.3V	4
40	LSYF0474	FRONT COVER UNIT	2
41	LSMP0293	FRONT COVER	5
42	LSEM0038	LAMP FAN UNIT	⚠ 5
43	LSMZ0276	FRONT BARRIER L	5
44	LSMZ0308	FRONT BARRIER R	5
45	LSGL0350	INFRARED PANEL FRONT PLASTIC	5
46	LSMF0061	FRONT FILTER	5
47	LSMZ0281	FILTER BARRIER	5
51	LSXA0348	OPTICAL BLOCK UNIT	3
52	LSXA0341	POLARIZER RED A UNIT	3
53	LSXA0342	POLARIZER GREEN A UNIT	3
54	LSXA0343	POLARIZER BLUE A UNIT	3
55	LSXA0361	LAMP HOUSE UNIT	3
56	LSRF0012	FLAT FAN MOTOR,DC5V	⚠ 3
57	LSMA0512	LAMP DUCT	3
58	LSMA0517	FUSE HOLDER	3
59	LSXA0370	DUCT RED/GREEN UNIT	3
60	LSXA0371	DUCT BLUE UNIT	3
61	LSDL0112	PROJECTION LENS	3
62	LSMA0472	OPTICAL PLATE,STAINLESS	3
63	LSVQ0027	PRISM/LCD UNIT	3
64	LSVQ0032	POLARIZER RED B UNIT	3
65	LSVQ0034	POLARIZER BLUE B UNIT	3
66	LSVQ0033	POLARIZER GREEN B UNIT	3
71	LSMF0069	LAMP FAN CUSHION URETHANEFORM	3
72	LSMT0066	CUSHION,POLYESTER	5
73	LSSC0453	FRONT TAPE	5
74	LSMT0065	CUSHION,POLYESTER	5
75	LSSC0488	BARRIER JOINT TAPE	5
76	LSMZ0309	ANGLE BARRIER	5
81	LSMA0495	FAN PLATE,STEEL	3
82	LSMF0056	SIDE FILTER	3
83	LSJA0345	CONNECTOR CABLE W/PLUG DC 3.3V	3
84	LSJA0346	FILTER SWITCH/TEMPERATURE FUSE UNIT	3
93	VMFS0129	SHEET,NYLON-RAYON	1,3
101	LSPG0988	PACKING CASE,PAPER	6 PT-LC50U
101	LSPG0989	PACKING CASE,PAPER	6 PT-LC50E
101	LSPG0990	PACKING CASE,PAPER	6 PT-LC150
102	LSPN0205	RIGHT CUSHION,STYROFOAM	6
103	LSPN0204	LEFT CUSHION,STYROFOAM	6
105	VPFS0054	BAG,POLYETHLENE	6
108	LSJA0308	POWER CORD W/PLUG,AC 125V	⚠ 6 PT-LC50U
	OR VJAS0179	POWER CORD W/PLUG,125V	⚠ 6 PT-LC50U
109	VJAS0188	POWER CORD W/PLUG,250V	⚠ 6 PT-LC50E
110	VJAS0189	POWER CORD W/PLUG,250V	⚠ 6 PT-LC50E
111	LSJA0239	VGA CABLE W/PLUG,DC 5V	6
114	LSJA0074	VIDEO CABLE W/PLUG,DC 5V	6
115	LSPN0207	ACCESSORY PAD S	6
116	LSJA0240	AUDIO CABLE W/PLUG,0.9VPP	6
117	LSSQ0275	CARD INFRARED REMOTE CONTROL UNIT	6
118	LSPN0208	ACCESSORY PAD L	6
121	LSFC0015	CARRYING BAG,NYLON	6
122	LSYC0162-A	SWIVEL STAND UNIT	6
123	LSQF0324	FAN BAG	6 PT-LC50U
123	LSQF0325	FAN BAG	6 PT-LC50E/PT-LC150
128	LSJA0210	POWER CORD W/PLUG	⚠ 6 PT-LC150
138	LSFT0243	INSTRUCTION BOOK CD-ROM	6
139	LSQT0324A	INSTRUCTION BOOK	6 PT-LC50U
139	LSQT0325A	INSTRUCTION BOOK	6 PT-LC50E/PT-LC150
454	XSN3+6FZ	SCREW,STEEL	3
472	XYN3+K6FZ	SCREW W/WASHER,STEEL	3
477	XYN3+K10FZ	SCREW,STEEL	3
478	XTN3+8GFC	TAPPING SCREW,STEEL	1
479	XTW3+8PFR	SCREW,STEEL	2
480	XYC2+CG6	SCREW W/WASHER	4
481	XTB26+7GFN	TAPPING SCREW,STEEL	1
482	XTB26+7GFR	TAPPING SCREW,STEEL	2,4
483	XTB2+4G	TAPPING SCREW,STEEL	5
484	XTN26+8G	TAPPING SCREW,STEEL	3
485	XYN3+K10FN	SCREW,STEEL	1
486	XYN25+K6	SCREW,STEEL	3
487	XYN3+K8FZ	SCREW,STEEL	3
488	XYN3+F8FN	SCREW W/WASHER	1
489	LSNW0032	WASHER,STEEL	4
490	LSHD0062	SCREW,STEEL	2
491	XYN3+K30	SCREW,STEEL	3
492	XTN2+8G	SCREW,STEEL	3
493	XSB3+4	SCREW,STEEL	3
701	LSKF0336	JACK COVER	2
702	LSSC0433	JACK PLATE,STEEL	2

Ref. No.	Part No.	Part Name & Description	Remarks
703	PNA4611M00YA	INFRARED RECEIVER UNIT	2 MKA
704	VMFS0114	CUSHION,RUBBER	2
705	VMTS0035	CUSHION,RUBBER	2
706	LSMZ0301	BARRIER	2
707	LSSC0451	JACK TAPE	2
E10	LSEP3030A1	MAIN C.B.A.	2 PT-LC50U/PT-LC50E
E10	LSEP3030C1	MAIN C.B.A.	2 PT-LC150
E11	LSEP0A45A1	SYNC SELECTOR C.B.A. NR	2
E20	LSEB1061A1	POWER C.B.A.	2 RTL
E21	LSEP1061A1	MAIN POWER C.B.A. NR	2
E22	LSEP1062A1	BALLAST C.B.A. NR	2
E30	LSEP1063A1	INLET C.B.A. NR	2
E40	LSEP0A34A1	OPERATION C.B.A.	4 RTL
E50	LSEP0A35A1	THERMISTOR C.B.A.	3 RTL
		SERVICE FIXTURES AND TOOLS	
	LSUA0010	EXTENSION CABLE-1	
	LSUA0032	EXTENSION CABLE-2	

13.3. ELECTRICAL REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks
		PRINTED CIRCUIT BOARD ASSEMBLY	
E10	LSEP3030A1	MAIN C.B.A.	E.S.D. PT-LC50U/PT-LC50E
E10	LSEP3030C1	MAIN C.B.A.	E.S.D. PT-LC150
E11	LSEP0A45A1	SYNC SELECTOR C.B.A. NR	
E20	LSEB1061A1	POWER C.B.A.	RTL
E21	LSEP1061A1	MAIN POWER C.B.A. NR	
E22	LSEP1062A1	BALLAST C.B.A. NR	
E30	LSEP1063A1	INLET C.B.A. NR	
E40	LSEP0A34A1	OPERATION C.B.A.	RTL
E50	LSEP0A35A1	THERMISTOR C.B.A.	RTL
		MAIN C.B.A.	
		INTEGRATED CIRCUITS	
IC1901	PQ20VZ1U	IC, LINEAR	
IC1902	AN78L09M-E1	IC, LINEAR	
IC1903	HAT2043R-EL	IC, LINEAR	
IC1904	PQ05DZ1U	IC, LINEAR	
IC1961	PQ20VZ1U	IC, LINEAR	
IC1962	PQ20VZ1U	IC, LINEAR	
IC1963	PQ20VZ1U	IC, LINEAR	
IC1964	PQ05DZ1U	IC, LINEAR	
IC2003	LTC1694CS5	IC, LOGIC	
IC2004	PQ2TZ15U	IC, LINEAR	
IC2005	L1087DTX-3.3	IC, LINEAR	
IC2006	AT24C16NSI27	IC, 16K EEP ROM	E.S.D.
	OR S-24C16AFJA	IC, 16K EEP ROM	E.S.D.
IC2007	AD9884AKS140	IC, LINEAR	
IC2008	SAA7114H	IC, LOGIC	
IC2009	UPD4721GS	IC, RS232C DRIVER	E.S.D.
IC2011	XC9572XL	IC, CMOS STANDARD LOGIC	E.S.D.
IC2012	PW164-10RK	IC, 16BIT MICROCONTROLLER	E.S.D.
IC2013	MBM29LV850S1	IC, 8M FLASH MEMORY	E.S.D.
IC2014	MB40C958VPFV	IC, CMOS STANDARD LOGIC	E.S.D.
IC2015	UPD65945-071	IC, CMOS STANDARD LOGIC	E.S.D.
IC2016	DS1708SESA	IC, LINEAR	
IC2019	M62334FP	IC, CMOS STANDARD LOGIC	E.S.D.
IC2020	ICS601G01TEF	IC, LOGIC	E.S.D.
IC2901	74VHC123AMTX	IC, CMOS STANDARD LOGIC	E.S.D.
IC2902	SN7AH2G14HCR	IC, CMOS STANDARD LOGIC	E.S.D.
	OR TC7WH14FU	IC, CMOS STADNARD LOGIC	E.S.D.
IC2903	TC7WH74FU	IC, CMOS STANDARD LOGIC	E.S.D.
IC2904	SN74LVC125PW	IC, CMOS STANDARD LOGIC	E.S.D.
IC3001	AT24C21	IC, 2K EEP ROM DDC MEMORY	E.S.D.
IC3002	SN74AHCT32PW	IC, CMOS STANDARD LOGIC	E.S.D.
	OR TC74VHCT32FT	IC, CMOS STANDARD LOGIC	E.S.D.
IC3003	M52347FP	IC, LINEAR	
IC3501	BU4053BCF	IC, CMOS STANDARD LOGIC	E.S.D.
IC3502	BU4053BCF	IC, CMOS STANDARD LOGIC	E.S.D.
IC3503	M62339FP	IC, LINEAR	
IC3504	ET6040S0A	IC, LINEAR	
IC3505	ET6040S0A	IC, LINEAR	
IC3506	ET6040S0A	IC, LINEAR	
IC3507	LC4105V-TLM	IC, CMOS STANDARD LOGIC	E.S.D.
IC3508	LC4105V-TLM	IC, CMOS STANDARD LOGIC	E.S.D.
IC4001	AN7512SH-E1V	IC, LINEAR	
IC4002	M62338FP	IC, LINEAR	
IC5001	BA7655AF	IC, LINEAR	
IC5002	BA7657F-E2	IC, LINEAR	
IC5003	74VHC123AMTX	IC, CMOS STANDARD LOGIC	E.S.D.

Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSISTORS	
Q1901	DTC114EU	CHIP	
	OR MUN5211T1	TRANSISTOR SI PNP CHIP	
	OR UN5211	CHIP	
Q1902	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q1903	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q1904	DTA114EU	CHIP	
	OR MUN5111T1	CHIP	
	OR UN5111	CHIP	
Q2001	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q2002	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q2003	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q2004	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q2005	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q2006	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q2007	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q2008	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q2009	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q2010	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q2011	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3001	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3002	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3003	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3004	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3005	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3006	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3007	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3008	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3009	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3010	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q3011	DTC144EU	CHIP	
	OR MUN5213	CHIP	
	OR UN5213	CHIP	
Q3012	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3013	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3014	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q3015	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3016	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q3501	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3502	2SB1218A(R)	CHIP	
Q3503	2SC2412K1	CHIP	
	OR 2SD601(R S)	CHIP	
Q3504	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3505	2SA1037K146R	CHIP	
	OR 2SB709A(R S)	CHIP	
Q3506	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3507	2SB1218A(R)	CHIP	
Q3508	2SC2412K1	CHIP	
	OR 2SD601(R S)	CHIP	
Q3509	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3510	2SA1037K146R	CHIP	
	OR 2SB709A(R S)	CHIP	
Q3511	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3512	2SB1218A(R)	CHIP	
Q3513	2SC2412K1	CHIP	
	OR 2SD601(R S)	CHIP	
Q3514	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q3515	2SA1037K146R	CHIP	
	OR 2SB709A(R S)	CHIP	
Q3516	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3517	2SD1819A(R,S)	CHIP	
Q3518	2SD1819A(R,S)	CHIP	
Q3519	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3520	2SD1819A(R,S)	CHIP	
Q3521	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3522	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3523	2SD1819A(R,S)	CHIP	
Q3524	2SD1819A(R,S)	CHIP	
Q3525	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3526	2SD1819A(R,S)	CHIP	
Q3527	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3528	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3529	2SD1819A(R,S)	CHIP	
Q3530	2SD1819A(R,S)	CHIP	
Q3531	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q3532	2SD1819A(R,S)	CHIP	
Q3533	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q4001	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	
Q4002	2SC4081T106R	CHIP	
	OR 2SD1819A	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q4003	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q4004	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q4005	2SD1819A(R)	CHIP	
Q4007	2SD1819A(R)	CHIP	
Q4008	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q4010	2SD1119(R)	CHIP	
Q5001	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5002	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5003	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5004	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5005	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5006	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5007	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5008	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5009	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5010	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q5011	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q5012	2SA1576A106R	CHIP	
	OR 2SB1218A	CHIP	
Q5013	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5014	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5015	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5016	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5017	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5018	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5019	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5020	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5021	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5022	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5023	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5024	2SC4081T106R	CHIP	
	OR 2SD1819A(R S)	CHIP	
Q5025	2SA1576A106R	CHIP	
	OR 2SB1218ARS	CHIP	
Q5026	2SC4081T106R	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
	OR 2SD1819A(RS)	CHIP	
Q5027	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5028	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5029	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5030	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5031	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5032	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5033	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5034	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5035	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
Q5036	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5037	2SC4081T106R	CHIP	
	OR 2SD1819A(RS)	CHIP	
Q5038	2SC4965YV-TL	CHIP	
	OR 2SC558000L	CHIP	
	OR 2SC563200L	CHIP	
		DIODES	
D1961	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D1962	DAN202UT	CHIP	
	OR MA141WK	CHIP	
	OR MA142WK	CHIP	
D1963	MA111	CHIP	
D1964	SFPL-62V	CHIP	
D1965	ERJ8GEY0R00V	MGF CHIP 1/8W 0	
D2001	MA8039-L	ZENER 3.9V	
D2002	MA8039-L	ZENER 3.9V	
D2003	RD13S	ZENER CHIP 13V	
D2004	RD13S	ZENER CHIP 13V	
D2005	NNCD12F-T1B	ZENER CHIP 12V	
D2006	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D2007	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D2008	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D2009	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D3001	DF5A6.8F	ZENER CHIP 6.8V	
	OR NNCD6.2G-T1	ZENER CHIP 6.2V	
D3501	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D3502	MA111	CHIP	
	OR 1SS355TE-17	CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
D3503	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D3504	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D3505	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D3506	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D4001	DF3A6.8FE	ZENER CHIP 6.8V	
	OR MAZT068H0L	ZENER CHIP 6.8V	
D4002	DF3A6.8FE	ZENER CHIP 6.8V	
	OR MAZT068H0L	ZENER CHIP 6.8V	
D4006	MA8051-M	ZENER CHIP 5.1V	
D4008	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D4009	MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D5001	RD6.2S	ZENER CHIP 6.2V	
D5002	DF3A6.8FE	ZENER CHIP 6.8V	
	OR MAZT068H0L	ZENER CHIP 6.8V	
D5003	DF3A6.8FE	ZENER CHIP 6.8V	
	OR MAZT068H0L	ZENER CHIP 6.8V	
D5004	DF3A6.8FE	ZENER CHIP 6.8V	
	OR MAZT068H0L	ZENER CHIP 6.8V	
		RESISTORS	
R1903	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1904	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1905	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1906	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1907	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R1912	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R1913	ERJ8GEYJ222V	MGF CHIP 1/8W 2.2K	
R1914	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R1915	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1916	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R1917	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R1919	VRJSD3D1002	MGF CHIP 1/16W 10K	
R1920	VRJSD3D1001	MGF CHIP 1/16W 1K	
R1921	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R1922	ERJ14YJ220H	MGF CHIP 22	
R1961	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R1963	VRJSD3D6801	MGF CHIP 1/16W 6.8K	
R1964	VRJSD3D1001	MGF CHIP 1/16W 1K	
R1965	VRJSD3D3301	MGF CHIP 1/16W 3.3K	
R1966	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R1968	VRJSD3D6801	MGF CHIP 1/16W 6.8K	
R1969	VRJSD3D1001	MGF CHIP 1/16W 1K	
R1970	VRJSD3D3301	MGF CHIP 1/16W 3.3K	
R1971	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R1973	VRJSD3D4701	MGF CHIP 1/16W 4.7K	
R1974	VRJSD3D1001	MGF CHIP 1/16W 1K	
R1976	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R1977	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R1978	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R1979	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R1980	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R1981	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R1982	ERJ8GEY0R00V	MGF CHIP 1/8W 0	
R2003	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2004	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2005	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R2006	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R2007	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R2009	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2010	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2011	ERJ2GE0R00X	MGF CHIP 1/16W 0	

Ref. No.	Part No.	Part Name & Description	Remarks
R2013	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2014	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2015	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2016	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2017	ERJ3GEYJ560V	MGF CHIP 1/16W 56	
R2018	ERJ3GEYJ560V	MGF CHIP 1/16W 56	
R2019	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2020	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R2021	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2022	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R2023	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R2024	ERJ2GEJ105X	MGF CHIP 1/16W 1M	
R2026	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2027	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2028	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2030	ERJ2GEJ105X	MGF CHIP 1/16W 1M	
R2031	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2032	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2034	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2035	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2036	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2037	ERJ2GEJ105X	MGF CHIP 1/16W 1M	
R2038	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2039	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2040	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2043	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2044	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R2045	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2046	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2047	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2048	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2051	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2052	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2053	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2054	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2055	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R2056	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2057	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2058	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2060	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2061	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2062	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2063	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2064	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2065	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2067	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2068	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2069	ERJ2GEJ682X	MGF CHIP 1/16W 6.8K	
R2070	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2071	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2072	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2073	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2074	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2075	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2076	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2077	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2078	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2079	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2080	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2081	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2082	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2083	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2084	ERJ2GEJ271X	MGF CHIP 1/16W 270	
R2085	ERJ3GEYJ271V	MGF CHIP 1/16W 270	
R2087	ERJ2GEJ104X	MGF CHIP 1/16W 100K	
R2088	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2089	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2090	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2091	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2092	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2093	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2094	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2095	MNR14EABJ470	ARRAY CHIP 1/16W 47	

Ref. No.	Part No.	Part Name & Description	Remarks
R2096	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2097	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2098	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2099	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2102	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2103	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2104	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2105	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2106	MNR14EABJ101	ARRAY CHIP 100	
R2107	MNR14EABJ101	ARRAY CHIP 100	
R2108	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R2109	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2110	ERJ3GEYJ680V	MGF CHIP 1/16W 68	
R2112	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2113	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2114	ERJ3GEYJ680V	MGF CHIP 1/16W 68	
R2115	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2116	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	
R2117	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2118	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2122	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2123	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2124	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2125	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2126	ERJ2GEJ103X	MGF CHIP 1/16W 10K	PT-LC50U/PT-LC50E
R2127	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2128	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2130	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2131	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2133	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2134	ERJ2GEJ103X	MGF CHIP 1/16W 10K	PT-LC150
R2137	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2138	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2139	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2140	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2141	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2142	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2143	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2145	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R2146	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2147	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2150	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2151	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2152	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2153	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2154	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2155	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2156	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2157	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2158	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2159	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2161	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2162	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2163	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2164	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2165	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2166	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2167	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2168	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2169	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2171	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2172	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2173	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2174	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2175	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2176	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2177	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2178	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2179	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2180	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2181	MNR14EABJ470	ARRAY CHIP 1/16W 47	

Ref. No.	Part No.	Part Name & Description	Remarks
R2182	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2183	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2184	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2186	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R2187	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2188	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2189	MNR14EABJ470	ARRAY CHIP 1/16W 47	
R2190	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2192	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2193	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R2194	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2195	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2196	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2197	VRJSD3D3301	MGF CHIP 1/16W 3.3K	
R2198	VRJSD3D3301	MGF CHIP 1/16W 3.3K	
R2199	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2200	VRJSD3D3301	MGF CHIP 1/16W 3.3K	
R2202	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2203	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2212	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2213	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2214	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2215	ERJ2GEJ680X	MGF CHIP 1/16W 68	
R2216	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2217	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2218	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R2219	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R2220	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R2221	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2224	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2225	ERJ2GEJ820X	MGF CHIP 1/16W 82	
R2226	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2227	ERJ2GEJ820X	MGF CHIP 1/16W 82	
R2228	VRJSD3D1001	MGF CHIP 1/16W 1K	
R2229	ERJ2GEJ820X	MGF CHIP 1/16W 82	
R2230	ERJ2GEJ822X	MGF CHIP 1/16W 8.2K	
R2231	ERJ2GEJ822X	MGF CHIP 1/16W 8.2K	
R2232	ERJ2GEJ822X	MGF CHIP 1/16W 8.2K	
R2233	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2234	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2235	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2236	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R2237	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R2238	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R2239	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2240	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2241	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2242	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R2243	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R2244	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2245	MNR14EABJ220	ARRAY CHIP 22	
R2246	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2247	MNR14EABJ220	ARRAY CHIP 22	
R2248	MNR14EABJ220	ARRAY CHIP 22	
R2249	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2250	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2251	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2252	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2253	MNR14EABJ220	ARRAY CHIP 22	
R2254	MNR14EABJ220	ARRAY CHIP 22	
R2255	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2256	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2257	ERJ2GEJ470X	MGF CHIP 1/16W 47	
R2258	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R2261	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2262	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2263	ERJ2GEJ105X	MGF CHIP 1/16W 1M	
R2264	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2265	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2266	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2267	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2268	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2269	ERJ2GEJ331X	MGF CHIP 1/16W 330	

Ref. No.	Part No.	Part Name & Description	Remarks
R2284	ERJ2GEJ183X	MGF CHIP 1/16W 18K	
R2285	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2286	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2287	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2291	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2292	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2293	ERJ3GEYJ123V	MGF CHIP 1/16W 12K	
R2294	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R2295	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R2298	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2299	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R2300	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R2301	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R2302	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2303	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2304	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2305	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2307	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R2308	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2312	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2313	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2315	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2316	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2317	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2318	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R2321	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2322	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2323	ERJ2GEJ183X	MGF CHIP 1/16W 18K	
R2324	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R2325	ERJ6GEYJ1R2V	MGF CHIP 1/10W 1.2	
R2326	ERJ6GEYJ1R2V	MGF CHIP 1/10W 1.2	
R2327	ERJ6GEYJ1R2V	MGF CHIP 1/10W 1.2	
R2328	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R2901	ERJ6ENF2202V	MGF CHIP 1/16W 22K	
R2902	ERJ6ENF3302	MGF CHIP 1/10W 33K	
R2903	ERJ6GEYJ220V	MGF CHIP 1/10W 22	
R3001	ERA3YHD750V	MGF CHIP 1/16W 75	
R3002	ERA3YHD750V	MGF CHIP 1/16W 75	
R3003	ERA3YHD750V	MGF CHIP 1/16W 75	
R3004	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3005	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R3006	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3007	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3008	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R3009	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3010	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3011	ERJ3GEYJ273V	MGF CHIP 1/16W 27K	
R3012	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3013	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3014	ERJ3GEYJ560V	MGF CHIP 1/16W 56	
R3015	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3016	ERJ3GEYJ560V	MGF CHIP 1/16W 56	
R3017	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3018	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R3019	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R3020	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3021	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R3022	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R3023	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R3024	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3025	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3026	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R3027	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R3028	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3029	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R3030	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3031	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R3032	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R3033	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	
R3034	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R3035	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3036	ERJ3GEYJ471V	MGF CHIP 1/16W 470	
R3037	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3038	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R3039	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R3040	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R3041	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R3042	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3043	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3044	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3045	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3046	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3048	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R3049	ERJ3GEYJ184V	MGF CHIP 1/16W 180K	
R3050	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R3501	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R3502	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3503	ERJ6ENF5600V	MGF CHIP 1/10W 560	
R3504	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3505	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R3508	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3509	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R3510	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3511	ERJ6ENF5600V	MGF CHIP 1/10W 560	
R3512	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3513	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R3514	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3515	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R3516	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3517	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R3518	ERJ6ENF6800V	MGF CHIP 1/10W 680	
R3519	ERJ6ENF5600V	MGF CHIP 1/10W 560	
R3520	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3521	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R3522	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3523	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R3524	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R3525	VRJSD3D1202	MGF CHIP 1/16W 12K	
R3526	VRJSD3D1501V	MGF CHIP 1/16W 1.5K	
R3527	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R3528	VRJSD3D1202	MGF CHIP 1/16W 12K	
R3529	VRJSD3D6801	MGF CHIP 1/16W 6.8K	
R3530	VRJSD3D1101	MGF CHIP 1/16W 1.1K	
R3538	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R3539	ERJ2GE0R00X	MGF CHIP 1/16W 0	
R3540	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R3541	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R3542	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R3548	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3549	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3550	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3551	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3552	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3553	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3554	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3555	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3556	ERJ2GEJ393X	MGF CHIP 1/16W 39K	
R3557	ERJ2GEJ223X	MGF CHIP 1/16W 22K	
R3558	ERJ2GEJ183X	MGF CHIP 1/16W 18K	
R3559	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R3560	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R3561	ERJ2GEJ223X	MGF CHIP 1/16W 22K	
R3562	ERJ3GEYJ123V	MGF CHIP 1/16W 12K	
R3563	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3564	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3565	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3566	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3567	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3568	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3569	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3570	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R3571	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R3572	ERJ2GEJ223X	MGF CHIP 1/16W 22K	
R3573	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3574	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R3575	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R3576	ERJ2GEJ223X	MGF CHIP 1/16W 22K	
R3577	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R3578	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R3579	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3580	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3581	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3582	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3583	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3584	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R3585	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R3586	ERJ2GEJ393X	MGF CHIP 1/16W 39K	
R3587	ERJ2GEJ223X	MGF CHIP 1/16W 22K	
R3588	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	
R3589	ERJ2GEJ333X	MGF CHIP 1/16W 33K	
R3590	ERJ2GEJ473X	MGF CHIP 1/16W 47K	
R3591	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R3592	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R3593	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R3594	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3595	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3596	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3597	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3598	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3599	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3600	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R3601	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3602	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3603	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3604	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3605	ERJ2GEJ101X	MGF CHIP 1/16W 100	
R3606	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3607	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3608	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3609	ERJ2GEJ220X	MGF CHIP 1/16W 22	
R3610	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R3612	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3613	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3614	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3615	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3616	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3617	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3618	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R3620	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3621	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3622	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3623	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3624	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3625	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3626	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R3628	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3629	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R3630	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3631	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3632	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R3633	ERJ2GEJ100X	MGF CHIP 1/16W 10	
R4001	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R4002	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R4003	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R4004	ERJ3GEYJ394V	MGF CHIP 1/16W 390K	
R4005	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R4006	ERJ3GEYJ394V	MGF CHIP 1/16W 390K	
R4007	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R4008	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R4010	ERJ3GEYJ392V	MGF CHIP 1/16W 3.9K	
R4011	ERJ3GEYJ392V	MGF CHIP 1/16W 3.9K	
R4012	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R4013	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R4015	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R4016	ERJ3GEYJ272V	MGF CHIP 1/16W 2.7K	
R4017	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R4019	ERJ3GEYJ392V	MGF CHIP 1/16W 3.9K	

Ref. No.	Part No.	Part Name & Description	Remarks
R4021	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R4023	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	
R4024	ERJ3GEYJ274V	MGF CHIP 1/16W 270K	
R4025	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R4026	VRJSD3D1802	MGF CHIP 1/16W 18K	
R4027	VRJSD3D4702	MGF CHIP 1/16W 47K	
R4030	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R4031	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R4035	ERJ3GEYJ183V	MGF CHIP 1/16W 18K	
R4036	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R4037	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R4038	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R5001	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5002	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R5003	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5004	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5005	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R5006	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R5007	VRJSD3D18R0	MGF CHIP 1/16W 18	
R5008	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R5009	ERA3YHD560V	MGF CHIP 1/16W 56	
R5010	VRJSD3D18R0	MGF CHIP 1/16W 18	
R5011	ERA3YHD560V	MGF CHIP 1/16W 56	
R5012	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5013	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R5014	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5015	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R5016	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R5017	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R5018	VRJSD3D18R0	MGF CHIP 1/16W 18	
R5019	ERA3YHD560V	MGF CHIP 1/16W 56	
R5020	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R5021	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R5022	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R5023	ERJ2GEJ393X	MGF CHIP 1/16W 39K	
R5024	ERJ2GEJ154X	MGF CHIP 1/16W 150K	
R5025	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R5026	ERJ2GEJ561X	MGF CHIP 1/16W 560	
R5027	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R5028	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R5029	ERA3YED681V	MGF CHIP 1/16W 680	
R5030	ERA3YED391V	MGF CHIP 1/16W 390	
R5031	ERJ2GEJ182X	MGF CHIP 1/16W 1.8K	
R5032	ERJ2GEJ821X	MGF CHIP 1/16W 820	
R5033	ERJ2GEJ222X	MGF CHIP 1/16W 2.2K	
R5034	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R5035	ERA3YED391V	MGF CHIP 1/16W 390	
R5036	ERJ2GEJ272X	MGF CHIP 1/16W 2.7K	
R5037	ERA3YED681V	MGF CHIP 1/16W 680	
R5038	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R5039	ERJ2GEJ222X	MGF CHIP 1/16W 2.2K	
R5040	ERJ2GEJ392X	MGF CHIP 1/16W 3.9K	
R5041	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R5042	ERJ2GEJ392X	MGF CHIP 1/16W 3.9K	
R5043	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R5045	ERJ2GEJ392X	MGF CHIP 1/16W 3.9K	
R5046	ERA3YED102V	MGF CHIP 1/16W 1K	
R5047	ERA3YED681V	MGF CHIP 1/16W 680	
R5048	ERA3YED681V	MGF CHIP 1/16W 680	
R5049	ERJ2GEJ332X	MGF CHIP 1/16W 3.3K	
R5050	ERJ2GEJ222X	MGF CHIP 1/16W 2.2K	
R5051	ERJ2GEJ222X	MGF CHIP 1/16W 2.2K	
R5052	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R5053	ERJ2GEJ123X	MGF CHIP 1/16W 12K	
R5054	ERJ2GEJ103X	MGF CHIP 1/16W 10K	
R5055	ERJ2GEJ122X	MGF CHIP 1/16W 1.2K	
R5056	ERJ2GEJ561X	MGF CHIP 1/16W 560	
R5058	ERJ2GEJ150X	MGF CHIP 1/16W 15	
R5060	ERJ2GEJ150X	MGF CHIP 1/16W 15	
R5061	ERJ2GEJ822X	MGF CHIP 1/16W 8.2K	
R5062	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R5063	ERJ2GEJ222X	MGF CHIP 1/16W 2.2K	
R5064	ERJ3GEYJ561V	MGF CHIP 1/16W 560	

Ref. No.	Part No.	Part Name & Description	Remarks
R5065	ERA3YED391V	MGF CHIP 1/16W 390	
R5066	ERJ3GEYJ561V	MGF CHIP 1/16W 560	
R5067	ERJ2GEJ821X	MGF CHIP 1/16W 820	
R5068	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R5069	ERJ3GEYJ221V	MGF CHIP 1/16W 220	
R5070	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5071	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5072	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R5073	ERJ2GEJ562X	MGF CHIP 1/16W 5.6K	
R5074	ERJ2GEJ564X	MGF CHIP 1/16W 560K	
R5075	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R5076	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5077	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5078	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R5079	ERJ2GEJ562X	MGF CHIP 1/16W 5.6K	
R5080	ERJ2GEJ564X	MGF CHIP 1/16W 560K	
R5081	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R5082	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5083	ERJ2GEJ822X	MGF CHIP 1/16W 8.2K	
R5084	ERJ2GEJ472X	MGF CHIP 1/16W 4.7K	
R5085	ERJ2GEJ221X	MGF CHIP 1/16W 220	
R5086	ERJ2GEJ562X	MGF CHIP 1/16W 5.6K	
R5087	ERJ2GEJ564X	MGF CHIP 1/16W 560K	
R5088	ERJ2GEJ102X	MGF CHIP 1/16W 1K	
R5089	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R5090	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R5091	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R5093	ERA3YED222V	MGF CHIP 1/16W 2.2K	
R5094	ERA3YED222V	MGF CHIP 1/16W 2.2K	
		CAPACITORS	
C1901	ECUV1C104KBV	C CHIP 16V 0.1	
C1902	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100	
C1903	ECUV1E104ZFV	C CHIP 25V 0.1	
C1904	ECUV1E104ZFV	C CHIP 25V 0.1	
C1906	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C1907	ECUV1E104ZFV	C CHIP 25V 0.1	
C1908	ECEV1AA101SP	ELECTROLYTIC CHIP 10V 100	
C1909	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C1910	ECEV1EA100S	ELECTROLYTIC CHIP 25V 10	
C1911	ECEV1EA100S	ELECTROLYTIC CHIP 25V 10	
C1912	ECUV1E104ZFV	C CHIP 25V 0.1	
C1913	ECEV1EA100S	ELECTROLYTIC CHIP 25V 10	
C1961	EEVHA1E330P	ELECTROLYTIC CHIP 25V 33	
C1962	ECUV1E104ZFV	C CHIP 25V 0.1	
C1963	EEVHA1C470P	ELECTROLYTIC CHIP 16V 47	
C1964	ECUV1E104ZFV	C CHIP 25V 0.1	
C1965	EEVHA1C470P	ELECTROLYTIC CHIP 16V 47	
C1966	ECUV1E104ZFV	C CHIP 25V 0.1	
C1967	ECEV1EA100S	ELECTROLYTIC CHIP 25V 10	
C1968	ECEV1CA220S	ELECTROLYTIC CHIP 16V 22	
C1969	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C1971	ECFF1H223ZF5	CERAMIC 50V 0.023	
C1972	ECFF1H223ZF5	CERAMIC 50V 0.023	
C1973	VCYSHRC104MX	CERAMIC 16V 0.1UF	
C2001	ECUV1C104KBV	C CHIP 16V 0.1	
C2004	ECUE1A104KBQ	C CHIP 10V 0.1	
C2005	ECUV1E333KBV	C CHIP 25V 0.033	
C2006	ECUV1E333KBV	C CHIP 25V 0.033	
C2007	ECUV1E333KBV	C CHIP 25V 0.033	
C2008	ECUE1A104KBQ	C CHIP 10V 0.1	
C2010	ECUE1H100DCQ	C CHIP 50V 10P	
C2011	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2012	ECUE1H100DCQ	C CHIP 50V 10P	
C2013	ECUE1H100DCQ	C CHIP 50V 10P	
C2014	ECUV1E104ZFV	C CHIP 25V 0.1	
C2015	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2016	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2017	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2018	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2019	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2020	ECST1AY106	TANTALUM CHIP 10V 10	

Ref. No.	Part No.	Part Name & Description	Remarks
C2021	ECUE1A104KBQ	C CHIP 10V 0.1	
C2022	ECUE1A473KBQ	C CHIP 10V 0.047	
C2023	ECUE1A473KBQ	C CHIP 10V 0.047	
C2024	ECUE1A473KBQ	C CHIP 10V 0.047	
C2025	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2026	ECUE1A393KBQ	C CHIP 10V 0.039	
C2027	ECUE1E392KBQ	C CHIP 25V 3900P	
C2028	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2029	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2030	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2031	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
C2032	ECUV1H100CCV	C CHIP 50V 10P	
C2033	ECUV1H080CCV	C CHIP 50V 8P	
C2035	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2039	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2041	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2043	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2044	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2045	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2046	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2047	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2048	ECEV1VS2R2S	ELECTROLYTIC CHIP 35V 2.2	
C2049	ECUV1E104ZFV	C CHIP 25V 0.1	
C2050	ECEV1VS2R2S	ELECTROLYTIC CHIP 35V 2.2	
C2051	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2052	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2056	ECST1AY106	TANTALUM CHIP 10V 10	
C2057	ECEV1VS2R2S	ELECTROLYTIC CHIP 35V 2.2	
C2058	ECEV1VS2R2S	ELECTROLYTIC CHIP 35V 2.2	
C2059	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2060	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2063	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2064	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2065	ECUE1A104KBQ	C CHIP 10V 0.1	
C2067	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2068	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2069	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2070	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2075	ECUV1H080CCV	C CHIP 50V 8P	
C2076	ECUV1H080CCV	C CHIP 50V 8P	
C2077	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2078	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2079	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2080	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2081	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2082	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2083	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2084	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2085	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2086	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2087	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2088	ECUV1E104ZFV	C CHIP 25V 0.1	
C2089	ECUE1A104KBQ	C CHIP 10V 0.1	
C2090	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2091	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2092	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2093	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2094	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2095	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2096	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2097	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2098	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2099	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2100	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2101	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2102	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2103	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2104	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2105	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2106	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2107	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2108	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2109	ECUE1C104ZFQ	C CHIP 16V 0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C2110	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2111	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2112	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2113	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2114	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2115	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2116	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2117	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2118	ECUV1E104ZFV	C CHIP 25V 0.1	
C2119	ECUV1E104ZFV	C CHIP 25V 0.1	
C2120	ECUV1E104ZFV	C CHIP 25V 0.1	
C2121	ECUV1E104ZFV	C CHIP 25V 0.1	
C2122	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2123	ECUV1C104KBV	C CHIP 16V 0.1	
C2124	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2125	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2126	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2127	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2128	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2129	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2130	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2131	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2132	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2133	VCUSTBA105KB	C CHIP 10V 1	
C2134	ECST1AY106	TANTALUM CHIP 10V 10	
C2135	ECEV1CA470S	ELECTROLYTIC CHIP 16V 47	
C2136	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2137	ECUV1E104ZFV	C CHIP 25V 0.1	
C2138	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2139	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2140	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2141	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2142	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2143	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2144	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2145	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2146	ECST0JY226R	TANTALUM CHIP 6.3V 22	
C2147	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2148	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2149	ECUE1C104ZFQ	C CHIP 16V 0.1	
C2150	ECUV1E104ZFV	C CHIP 25V 0.1	
C2151	ECUV1E104ZFV	C CHIP 25V 0.1	
C2153	ECUV1E104KBN	C CHIP 25V 0.1	
C2167	ECUE1A104KBQ	C CHIP 10V 0.1	
C2168	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2901	ECUV1E104ZFN	C CHIP 25V 0.1	
C2902	ECUV1E223KBN	C CHIP 25V 0.022	
C2903	ECUV1E223KBN	C CHIP 25V 0.022	
C2904	ECUV1E104ZFN	C CHIP 25V 0.1	
C2905	ECUV1E104ZFN	C CHIP 25V 0.1	
C2906	ECST0JY106	TANTALUM CHIP 6.3V 10	
C2907	ECUV1E104ZFN	C CHIP 25V 0.1	
C3001	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3002	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3003	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3004	ECUV1E104ZFV	C CHIP 25V 0.1	
C3005	ECEV1CA220S	ELECTROLYTIC CHIP 16V 22	
C3006	ECUV1E104ZFV	C CHIP 25V 0.1	
C3007	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C3008	ECUV1E104ZFV	C CHIP 25V 0.1	
C3009	ECUV1E104ZFV	C CHIP 25V 0.1	
C3010	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3011	ECUV1H100CCV	C CHIP 50V 10P	
C3012	ECUV1H103KBN	C CHIP 50V 0.01	
C3013	ECUV1H121JCV	C CHIP 50V 120P	
C3014	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3015	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47	
C3016	ECUV1H103ZFV	C CHIP 50V 0.01	
C3017	ECUV1H121JCV	C CHIP 50V 120P	
C3018	ECEV1CA4R7N	ELECTROLYTIC CHIP 16V 4.7	
C3019	ECUV1E683KBN	C CHIP 25V 0.068	
C3020	ECUV1H103KBN	C CHIP 50V 0.01	
C3021	ECEV1CA4R7N	ELECTROLYTIC CHIP 16V 4.7	

Ref. No.	Part No.	Part Name & Description	Remarks
C3022	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C3024	ECUV1H561JCV	C CHIP 50V 560P	
C3025	ECUV1H101JCV	C CHIP 50V 100P	
C3026	ECUV1H101JCV	C CHIP 50V 100P	
C3027	ECUV1A105ZFV	C CHIP 10V 1	
C3028	ECUV1E104ZFV	C CHIP 25V 0.1	
C3501	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3502	ECUV1E104ZFV	C CHIP 25V 0.1	
C3503	ECUV1E104ZFV	C CHIP 25V 0.1	
C3504	ECUV1E104ZFV	C CHIP 25V 0.1	
C3505	ECUV1E104ZFV	C CHIP 25V 0.1	
C3506	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3507	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3508	ECUV1E104ZFV	C CHIP 25V 0.1	
C3517	ECUV1C104KBV	C CHIP 16V 0.1	
C3519	ECUV1E104ZFV	C CHIP 25V 0.1	
C3520	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3521	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3522	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3523	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3524	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3525	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3526	ECUV1E104ZFV	C CHIP 25V 0.1	
C3527	ECUV1E104ZFV	C CHIP 25V 0.1	
C3528	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3529	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C3530	ECUV1E104ZFV	C CHIP 25V 0.1	
C3531	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3532	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3533	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3534	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3535	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3536	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3537	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3538	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3539	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3540	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3541	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3542	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3543	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3544	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3545	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3546	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3547	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3548	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3549	ECUV1E104ZFV	C CHIP 25V 0.1	
C3550	ECUV1E104ZFV	C CHIP 25V 0.1	
C3551	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3552	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C3553	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3554	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3555	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3556	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3557	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3558	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3559	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3560	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3561	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3562	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3563	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3564	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3565	ECUV1E104ZFV	C CHIP 25V 0.1	
C3566	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3567	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3568	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3569	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3570	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3571	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3572	ECUV1E104ZFV	C CHIP 25V 0.1	
C3573	ECUV1E104ZFV	C CHIP 25V 0.1	
C3574	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3575	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C3576	ECUE1C104ZFQ	C CHIP 16V 0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C3577	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3578	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3579	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3580	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3581	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3582	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3583	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3584	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3585	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3586	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3587	ECUE1C104ZFQ	C CHIP 16V 0.1	
C3588	ECUV1C104KBV	C CHIP 16V 0.1	
C3589	ECUV1E104ZFV	C CHIP 25V 0.1	
C3590	ECUV1E104ZFV	C CHIP 25V 0.1	
C3592	ECUV1C104KBV	C CHIP 16V 0.1	
C3593	ECUV1E104ZFV	C CHIP 25V 0.1	
C3594	ECUV1E104ZFV	C CHIP 25V 0.1	
C3595	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3596	VCUSTBA105KB	C CHIP 10V 1	
C3597	ECUV1E104ZFV	C CHIP 25V 0.1	
C3598	ECUV1E104ZFV	C CHIP 25V 0.1	
C3599	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3600	VCUSTBA105KB	C CHIP 10V 1	
C3601	ECUV1E104ZFV	C CHIP 25V 0.1	
C3602	ECUV1E104ZFV	C CHIP 25V 0.1	
C3603	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C3604	VCUSTBA105KB	C CHIP 10V 1	
C3605	ECUV1E104ZFV	C CHIP 25V 0.1	
C3606	ECUV1E104ZFV	C CHIP 25V 0.1	
C3607	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C4001	VCUSTBA105KB	C CHIP 10V 1	
C4002	VCUSTBA105KB	C CHIP 10V 1	
C4003	ECUV1C473KBV	C CHIP 16V 0.047	
C4005	ECUV1H562KBV	C CHIP 50V 5600P	
C4007	VCUSTBA105KB	C CHIP 10V 1	
C4009	ECUV1E223KBV	C CHIP 25V 0.022	
C4011	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100	
C4012	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C4013	VCUSTBA105KB	C CHIP 10V 1	
C4014	ECUV1H103ZFV	C CHIP 50V 0.01	
C4015	ECUV1E104KBN	C CHIP 25V 0.1	
C4016	ECUV1E104ZFV	C CHIP 25V 0.1	
C4017	ECEV0JA331	ELECTROLYTIC CHIP 6.3V 330	
C4020	ECEV1AA101SP	ELECTROLYTIC CHIP 10V 100	
C4021	ECUV1C104KBV	C CHIP 16V 0.1	
C4022	ECUV1E104ZFV	C CHIP 25V 0.1	
C4023	ECUV1E104ZFV	C CHIP 25V 0.1	
C4026	ECUV1E104ZFV	C CHIP 25V 0.1	
C5001	ECUV1H103ZFV	C CHIP 50V 0.01	
C5002	ECUV1H103ZFV	C CHIP 50V 0.01	
C5003	ECUV1E473ZFV	C CHIP 25V 0.047	
C5004	ECUV1H103ZFV	C CHIP 50V 0.01	
C5005	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C5006	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C5007	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47	
C5008	ECUV1E104ZFV	C CHIP 25V 0.1	
C5009	ECEV1CA220S	ELECTROLYTIC CHIP 16V 22	
C5010	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33	
C5011	ECUV1H150JCV	C CHIP 50V 15P	
C5012	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C5013	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47	
C5014	ECEV0JA220S	ELECTROLYTIC CHIP 6.3V 22	
C5015	ECUV1E104ZFV	C CHIP 25V 0.1	
C5016	ECUV1E104ZFV	C CHIP 25V 0.1	
C5019	ECUV1E104ZFV	C CHIP 25V 0.1	
C5020	ECUV1E104ZFV	C CHIP 25V 0.1	
C5021	ECUV1E104ZFV	C CHIP 25V 0.1	
C5025	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C5026	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C5027	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C5028	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C5029	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	
C5030	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10	

Ref. No.	Part No.	Part Name & Description	Remarks
C5031	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100	
C5032	ECUV1E104ZFV	C CHIP 25V 0.1	
C5033	ECUV1E104ZFV	C CHIP 25V 0.1	
C5034	ECUV1E104ZFV	C CHIP 25V 0.1	
C5035	ECUV1H100CCV	C CHIP 50V 10P	
C5036	ECUV1H100CCV	C CHIP 50V 10P	
C5037	ECUV1H100CCV	C CHIP 50V 10P	
C5038	VCUSQBA225KB	C CHIP 10V 2.2	
C5039	VCUSQBA225KB	C CHIP 10V 2.2	
C5040	VCUSQBA225KB	C CHIP 10V 2.2	
C5041	ECUV1E104ZFV	C CHIP 25V 0.1	
C5042	ECUV1E104ZFV	C CHIP 25V 0.1	
C5043	ECUV1H271JCV	C CHIP 50V 270P	
C5044	ECUV1H151JCV	C CHIP 50V 150P	
C5045	ECUV1E104ZFV	C CHIP 25V 0.1	
		FILTERS	
FL2001	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2002	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2003	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2004	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2005	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2006	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2007	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2008	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2009	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2010	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2011	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2012	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2013	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2014	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2015	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2016	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL2017	LSLFAA1H102	L/C COMPLX CMP 50V 1000P	
FL2018	LSLFAA1H102	L/C COMPLX CMP 50V 1000P	
FL3001	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL3002	NFM51R20P207	L/C COMPLX CMP 200	
FL3003	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL3004	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL4001	LSLFAA1H102	L/C COMPLX CMP 50V 1000P	
FL4002	LSLFAA1H102	L/C COMPLX CMP 50V 1000P	
FL5001	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL5002	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
FL5003	LSLFAA1H101	L/C COMPLX CMP 50V 100P	
		COILS	
L2002	VLQ0163J4R7	CHIP 4.7	
L2004	FBM2125HS420	CHIP 42	
L2006	VLQ0163J4R7	CHIP 4.7	
L2007	VLQ0163J4R7	CHIP 4.7	
L2008	VLQ0163J220	CHIP 22	
L2009	FBM2125HS420	CHIP 42	
L2010	FBM2125HS420	CHIP 42	
L2016	FBM2125HS420	CHIP 42	
L2017	FBM2125HS420	CHIP 42	
L2018	FBM2125HS420	CHIP 42	
L2020	FBM2125HS420	CHIP 42	
L2021	VLPS0090	CHIP	
L2022	VLPS0090	CHIP	
L2023	VLPS0090	CHIP	
L2024	VLPS0090	CHIP	
L2901	FBM2125HS420	CHIP 42	
L3001	VLQ0163J220	CHIP 22	
L3002	VLQ0163J220	CHIP 22	
L3003	VLQ0163J220	CHIP 22	
L3501	VLPS0090	CHIP	
L3502	VLPS0090	CHIP	
L3503	VLQ0163J220	CHIP 22	
L3504	VLQ0163J220	CHIP 22	
L3505	VLQ0163J220	CHIP 22	
L3506	VLQ0163J220	CHIP 22	

Ref. No.	Part No.	Part Name & Description	Remarks
L3507	VLQ0163J220	CHIP 22	
L3508	VLQ0163J220	CHIP 22	
L3509	VLPS0090	CHIP	
L3510	VLQ0163J220	CHIP 22	
L3511	VLQ0163J220	CHIP 22	
L3512	VLQ0163J220	CHIP 22	
L3513	VLQ0163J220	CHIP 22	
L4001	VLQ0163J271	CHIP 270	
L4002	VLPS0090	CHIP	
L5001	VLQ0163J101	CHIP 100	
L5002	VLJW2YL3R9JT	CHIP 3.9	
L5003	VLQ0426J220	CHIP 22	
L5004	VLQ0426J220	CHIP 22	
L5005	VLQ0163J220	CHIP 22	
		CRYSTAL OSCILLATOR	
X2001	VSXS0810		
X2002	LSSX0052		
		PIN HEADERS	
P1901	LSJSPC03F	CONNECTOR 3P	
P1902	LSJSPC03F	CONNECTOR 3P	
P1903	LSJSME03E	CONNECTOR 3P	
P1904	LSJSME04E	CONNECTOR 4P	
P1905	LSJSME12E	CONNECTOR 12P	
P1906	LSJSME02E	CONNECTOR 2P	
P1907	LSJSME03E	CONNECTOR 3P	
P2002	VJPW0250	CONNECTOR 2P	
P2003	LSJS0085	CONNECTOR 18P	
P2004	LSJS07AF006	CONNECTOR 6P	
P3501	LSJS07BC030	CONNECTOR 30P	
P3502	VJSS3332	CONNECTOR 30P	
P3503	LSJS07BC030	CONNECTOR 30P	
P4001	LSJSPC02F	CONNECTOR 2P	
		SWITCHES	
SW2001	ESE13H01	DETECT SWITCH	
SW2002	LSSM0002	DETECT SWITCH	
		FUSE & PROTECTOR	
PR1901	ICP-S1.8	IC PROTECTOR CHIP 1.8A	⚠
PR1903	ICP-S1.8	IC PROTECTOR CHIP 1.8A	⚠
PR1904	ICP-S2.3	IC PROTECTOR CHIP 2.3A	⚠
		MISCELLANEOUS	
JK2003	LSJJ0155	RS232C JACK SOCKET	
JK3001	LSJJ0125A	D-SUB MINI JACK SOCKET	
JK4001	LSJJ0156	STEREO MINI JACK SOCKET	
JK5001	LSJJ0157	S-VIDEO JACK SOCKET	
JK5002	LSJJ0158	RCA PIN JACK SOCKET	
		MISCELLANEOUS	
E11	LSEP0A45A1	SYNC SELECTOR C.B.A. NR	
490	LSHD0062	SCREW,STEEL	
701	LSKF0336	JACK COVER	
702	LSSC0433	JACK PLATE,STEEL	
703	PNA4611M00YA	INFRARED RECEIVER UNIT	MKA
704	VMFS0114	CUSHION,RUBBER	
705	VMTS0035	CUSHION,RUBBER	
706	LSMZ0301	BARRIER	
707	LSSC0451	JACK FCC PLATE	
		INLET C.B.A. NR	

Ref. No.	Part No.	Part Name & Description	Remarks
		FUSE & PROTECTOR	
F1101	LSSF0013B50T	FUSE 250V 5A	⚠
F1102	MTG4A50121C	FUSE 250V 4A	⚠
		POWER C.B.A.	
		MISCELLANEOUS	
E21	LSEP1061A1	MAIN POWER C.B.A. NR	
E22	LSEP1062A1	BALLAST C.B.A. NR	
		OPERATION C.B.A.	
		DIODES	
D7001	LNJ206R5ARA	LED CHIP RED	
D7002	LNJ206R5ARA	LED CHIP RED	
D7003	LNJ206R5ARA	LED CHIP RED	
D7004	LNJ206R5ARA	LED CHIP RED	
D7005	LNJ206R5ARA	LED CHIP RED	
D7006	LNJ206R5ARA	LED CHIP RED	
D7007	LNJ206R5ARA	LED CHIP RED	
D7008	LN2162C13	LED	
		PIN HEADERS	
P7001	LSJS0085	CONNECTOR 18P	
		SWITCHES	
SW7002	LSSP0014	PUSH SWITCH	
SW7003	LSSP0014	PUSH SWITCH	
SW7004	LSSP0014	PUSH SWITCH	
SW7005	LSSP0014	PUSH SWITCH	
SW7006	LSSP0014	PUSH SWITCH	
SW7007	LSSP0014	PUSH SWITCH	
SW7008	LSSP0014	PUSH SWITCH	
SW7010	LSSP0014	PUSH SWITCH	
SW7011	LSSP0014	PUSH SWITCH	
		THERMISTOR C.B.A.	
		INTEGRATED CIRCUITS	
IC6401	DS1775R/T&R	IC, LINEAR	
		RESISTORS	
R6401	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R6402	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
		CAPACITORS	
C6401	ECUV1E104ZFV	C CHIP 25V 0.1	
		COILS	
L6401	FBM2125HS420	CHIP 42	
		PIN HEADERS	
P6401	LSJS07AF006	CONNECTOR 6P	